

Pictures Show Wide Variety of Chicago Air-Conditioning Applications and Installation Methods



Showroom of Evans Fur Co., 162 North State St. Customers find relief from summer heat in its cool atmosphere.



This unit conditioner in a Chicago home serves as a decorative window stand as well as giving cool air.



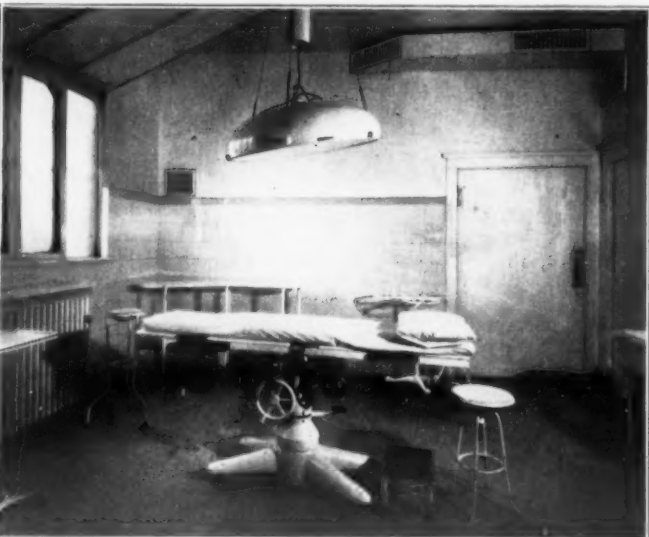
A suspended air-conditioning unit distributes conditioned air in the office of Dr. Theo. H. Mayday, Cicero.



Air as fresh as that which its pilots find high in the sky is furnished in the office of United Air Lines, 5936 South Cicero Ave., by the suspended type air-conditioning unit at upper right.



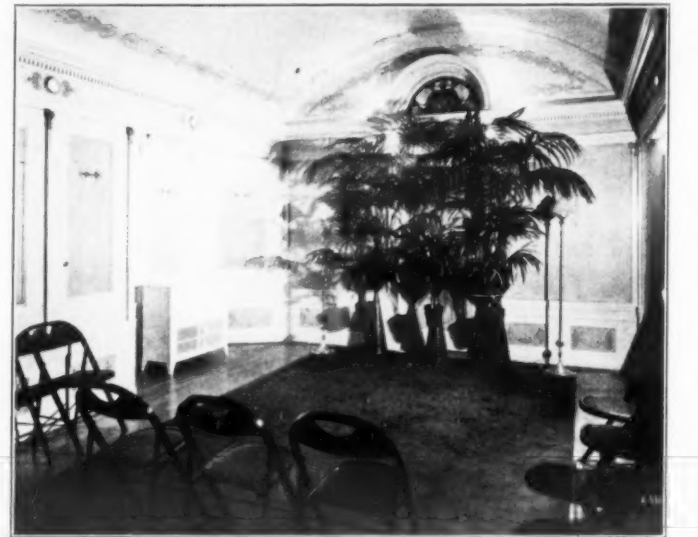
Fresh as the flowers! That's how the air is in George Wittbold's Flower Shop, 633 North Michigan Ave. Air-conditioning grilles are against the wall at the left of the picture.



An air-conditioned operating room in the Jefferson Park hospital, 1410 West Monroe St. Note the ducts and grilles in the ceiling.



Trying-on times are no longer trying in the fitting room of Stayform Shop, 17 North State St.



This unit air conditioner furnishes comfortable conditions in the chapel of Grein Funeral Directors, 1723 North Larrabee.



Carrier-Brunswick equipment in the fan room at Peck & Peck, 38 South Michigan Ave., one of Chicago's smart stores for women.



Wives (and husbands, too) can select gowns in comfort in the shop of Eisenberg & Sons, Inc. The concealed floor unit is shown at the right.

REFRIGERATION NEWS

Registered U. S. Patent Office

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DETROIT, MICHIGAN, MAY 27, 1936

Copyright, 1936, by
Business News Pub. Co.THREE DOLLARS PER YEAR
TEN CENTS PER COPYCleveland Area
Unit Sales Are
4,309 for April4-Mos. Refrigerator Sales
Total 10,345 — Gain of
1,708 over 35' Period

CLEVELAND — Electric refrigerator sales by distributors in Cuyahoga County during April of this year totaled 4,309 units, a 19.7% increase over the 3,597 units sold during the same month in 1935.

The same percentage increase was evidenced in reports of sales for the first four months of this year, which were 10,345 units, as compared with 8,637 in 1935.

2,607 Refrigerators
Sold in Oklahoma
Utility Territory

OKLAHOMA CITY — Sales of household electric refrigerators in the territory covered by dealers of the Oklahoma Gas & Electric Co. for the first three months of 1936, totaled 2,607, according to a report issued by the power company officials.

Following is a list of sales for each trade center during the three-month period:

Oklahoma City	1,012
Normal	41
El Reno	29
Guthrie	25
Shawnee	210
Seminole	42
Holdenville	37
Wewoka	65
Muskogee	243
Ardmore	195
Ada	203
Durant	32
Pauls Valley	36
Sulphur	8
Enid	133
Alva	47
Sapulpa	33
Chandler	22
Drumright	52
Bristow	34
Checotah-Eufaula	5
Heavener-Poteau	53
Total	2,607

6,936 Units Sold in April
By Leonard Co.

DETROIT — April sales of 6,939 units brought Leonard electric refrigerator shipments for the fiscal seven-months period ending April 30 to 40,891 units, a 51% increase over the 26,999 units for the same period last year, reports R. I. Petrie, sales manager of Leonard Refrigerator Co.

Line of Five Refrigerators
Built by Midwest Radio

CINCINNATI — Midwest Radio Corp. has just put on the market an "Economy" line of household electric refrigerators in five models, ranging in size from 4.4 to 8.7-cu. ft. gross storage capacity.

Low price is claimed as one of the features of the new line, because of Midwest's policy of selling direct to customers through "factory show-rooms."

Cabinets of the new models have been designed with a squared-off effect. Doors fit flush with the cabinet top, and carry a thin stripe down the middle panel under the Midwest emblem.

Fabricated from rigid, highly finished cold rolled steel sheets, the cabinets are finished, on the outside, in "porcelac" lacquer over a high-bake, rust-resisting undercoat. Base of the cabinet, finished in black lacquer, is floor-length all the way around, and its front section is recessed slightly.

Interior of the cabinets is a one-piece rounded corner sheet of stainless steel. Deluxe models have interior electric light.

Hardware is die cast, chromium plated. Door handle on all models is of the "finger touch" type. Shelves are of the flat-ribbon type, and, with the exception of the 4.4-cu. ft. model, are hot-tinned to prevent rusting. They are independently supported, and are removable.

Centrally located evaporator is finished in silver satin, and has a chromium-plated shield. None of the

(Concluded on Page 2, Column 5)

Cincinnati Distributors Protest
Long-Time Guarantees

CINCINNATI — Branding the long-term guarantee as the "most dangerous situation in the refrigeration merchandising picture today," E. P. Zachman, business manager of the Cincinnati Electrical Association, recently sent to the Household Refrigeration Section of the Refrigeration Division of National Electrical Manufacturers Association a resolution unanimously endorsed by the Cincinnati group at its last monthly meeting, condemning long guarantees.

Mr. Zachman said that it was the opinion of the association that the policy on long guarantees "will result in endless service expense on the part of the distributor and dealer to maintain the 'good-will' of the misinformed purchasers."

Text of the resolution adopted by the association follows:

"Whereas the practice of long guarantees and protection plans on domestic electric refrigerators, as now

issued by the manufacturers of this merchandise, does not result in increased sales, and

"Whereas the greatest portion of the cost maintaining these extended guarantees rests on the Distributors and/or Dealers, and

"Whereas this practice tends to create a situation which through misinformation results in discontent and dissatisfaction among purchasers of refrigerators,

"Be it therefore resolved that the Distributors of electric refrigerators serving the Cincinnati territory, go on record as objecting to these unwarranted long guarantees and protections and petition N. E. M. A. to use their influence in an endeavor to correct this situation and cause the electrical refrigerator manufacturers to agree upon a guarantee period that is sensible, sound, and fair, in accordance with that of other electrical appliances."

Refrigeration Division
Of Wholesale Radio
Sold to Alter

CHICAGO — Harry Alter Co., distributor of refrigeration replacement parts and supplies, has purchased the refrigeration supply division of Wholesale Radio Service Co., New York City firm, President Harry Alter announced last week.

Wholesale Radio Service Co., one of the country's largest radio supply houses, with headquarters in New York City and branches in Atlanta, Chicago, Newark, and the Bronx, is discontinuing its refrigeration supply business to confine its activities to radio.

Negotiations for Alter's purchase of Wholesale Radio's refrigeration stock were carried on between Mr. Alter and Mr. Berk, vice president of Wholesale Radio in charge of western operations.

Customers who have been buying refrigeration parts from Wholesale will be turned over to Alter, and the company will determine to its own satisfaction that they are in the refrigeration business before accepting any orders from them.

57 Veteran Employees
Honored at Leonard's
55th Anniversary

GRAND RAPIDS, Mich. — Fifty-seven long-term employees of the Leonard Refrigerator Co. were honored at a banquet May 26 in the Pantlind hotel here. In recognition of their service records, in all totaling 1,488 years, they were awarded engraved gold watches by G. W. Mason, president of the company.

The dinner at which the awards were made was also in the form of a celebration of the fifty-fifth anniversary of the founding of the Leonard Refrigerator Co.

Of the fifty-seven men feted at the banquet, six have records of 33 years or more of active service. Bob Granstra of the wood mill with a record of 45 years service, Joe De Vos of door assembly and George Robinson of the packing department with records of 43 years each, Lewellyn Weaver and Drum Sander with records of 37 years, and Evert Mellema, inspector, with a record of 33 years, comprise the list of these veterans.

Speakers at the banquet were Dr. John W. Riegel, director of business and industrial relations at the University of Michigan, and Tunis Johnson, mayor of Grand Rapids.

SPECIFICATIONS ISSUES
ARE AVAILABLEHousehold April 22
Commercial May 6
Air Conditioning May 20

Extra copies of each specifications issue may still be obtained. Price 25 cents per copy. Please enclose remittance with order.

Arco Division Makes
Conditioning Line for
Sectional Assembly

NEW YORK CITY — A line of low-priced air-conditioning equipment, designed primarily for existing homes, apartments, hotels, and offices, has been announced by Fowler Manning, president of Standard Air Conditioning, Inc., division of American Radiator & Standard Sanitary Corp.

Starting at less than \$100, the new Standard air-conditioning equipment is selective and progressive, and permits the purchaser to have some of the benefits of air conditioning at low initial cost, and to add to these benefits later without expensive alteration.

The line of equipment is built on the "sectional book case" principal, and provides almost any combination of the eight phases of air conditioning: fresh air, air cleaning, circulation, noise elimination, heating, humidification, cooling, and dehumidification.

Certain units provide some of the phases of conditioning for a single room; additional rooms may be conditioned later, or other phases added to the existing installation. An entire house may be conditioned with the

(Concluded on Page 11, Column 4)

Refrigeration and Air
Conditioning on
E. E. I. Program

ST. LOUIS — Most diversified and inclusive program that the electric light and power industry has presented at any meeting in recent years is scheduled for the fourth annual convention of Edison Electric Institute in the Municipal Auditorium here June 1 to 4.

Both refrigeration and air conditioning will have important places on the convention program. Refrigeration will be covered in a discussion of the Kitchen Modernization Program at the second general session Tuesday morning, June 2, and most of the Wednesday afternoon meeting will be turned over to a symposium on air conditioning led by C. E. Michel, vice president of Union Electric Light & Power Co., St. Louis.

In addition to these topics of particular interest to the refrigeration

(Concluded on Page 2, Column 3)

Nema Splits Technical
Group into 2 Sections

HOT SPRINGS, Va. — The technical committee of the Refrigeration Division of National Electrical Manufacturers Association was split up into a household section and a commercial section, with the approval of members of the division at their recent meeting here.

The change was made, says Halde-man Finnie, manager of the division, because it was believed unreasonable to expect that the members of a single committee could take sufficient time away from their own companies' interests to push through concur-

(Concluded on Page 2, Column 5)

ACMA Applications Code Gets
Approval; Standard Warranty
Adopted by Big Machine GroupMembers Will Make Use
Of Code in Field Work;
Warranty Form Approved

HOT SPRINGS, Va. — Adoption of an air-conditioning applications code for members, pending the drafting of a national code under sponsorship of the technical societies interested in the air-conditioning field, was the chief action taken by the Air Conditioning Manufacturers Association at its annual meeting here May 16.

The applications standards code was submitted to ACMA members by Donald French, chairman of the organization's technical and code committee. Text of the code will be released within the next few weeks.

P. A. McKittrick of Parks-Cramer Co., Fitchburg, Mass., president of ACMA, presided at the meeting.

A large portion of the association's meeting was devoted to a discussion of the standardization program inaugurated last year. Important among standard practices adopted was a form of warranty for use by association members. Substantial progress in several other branches of the standardization program was also reported.

J. F. G. Miller of B. F. Sturtevant Co., Boston, was elected president of ACMA for the coming year; J. A. Harlan of Kelvinator Corp., Detroit, was named vice president; and P. A. McKittrick of Parks-Cramer Co., treasurer. William B. Henderson continues as executive vice president.

Board of directors of ACMA for next year is headed by S. E. Lauer of York Ice Machinery Corp., York, Pa. Other members are: W. F. Armstrong, Delco-Frigidaire Conditioning Corp., Dayton; P. Y. Danley, Westinghouse Electric & Mfg. Co., Mansfield; J. J. Donovan, General Electric Co., Bloomfield, N. J.; Mr. Harlan; Mr. McKittrick; Mr. Miller; and William H. Price, Jr., Carrier Engineering Corp., Newark.

Members of the association's standards committee, which heads up ACMA's active current program, are:

Mr. Price, chairman; Mr. Donovan; Frank Kirk, Vilter Mfg. Co.; J. K. Knighton, Kelvinator Corp.; Mr. Lauer; Mr. McKittrick; Mr. Miller; S. F. Myers, Westinghouse Electric & Mfg. Co.; and J. J. Nance, Delco-Frigidaire Conditioning Corp.

11 Grunow Distributors
Are Appointed

CHICAGO — General Household Utilities Co., manufacturer of Grunow radios and refrigerators, last week appointed the following 11 new distributors for its line: Reichman-Crosby Co., Memphis; National Products Distributing Co., Atlanta; Commercial Refrigeration Co., Houston, Tex.; R. H. Mehman, Inc., Columbia, S. C.; Charron Radio Co., Worcester, Mass.; Findlater Hardware Co., San Angelo, Tex.; Hastings Piano Co., Hastings, Neb.; Red Rooster Supply Co., Grand Island, Neb.; Virginia Battery & Tire Co., Petersburg, Va.; Warren Electric Co., Sioux City, Iowa; and Wichita Distributing Co., Wichita Falls, Tex.

Hattenbach Completes 20
Years in Industry, Honored

PITTSBURGH — In tribute to Al Hattenbach's 20 years of activity in the refrigeration field, the entire dealer, department and furniture store, and utility selling organization of Electric Products Corp., of which he is president, is conducting a Twentieth Anniversary Jubilee campaign. Mr. Hattenbach is one of Frigidaire's pioneer distributors.

Helping him to celebrate the anniversary are R. E. Steffan and W. S. Dingfelder, both members of his company and associates for the 20-year period.

In a communication to the members of Mr. Hattenbach's organization, E. G. Biechler, president and general manager of Frigidaire Corp., congratulated him on "playing an important part in the successful rise of Frigidaire in an industry of national prominence."

Rules on Certification
Of Condensing Units
Also Adopted

HOT SPRINGS, Va. — Refrigerating Machinery Association members meeting here recently for their annual spring session adopted a standard form of warranty and rules and regulations for use in connection with the testing, rating, and rating certification of mechanical condensing units. It is expected that these standard forms will be made public in the near future.

For several months, RMA members have been carrying out tests and establishing ratings on their equipment in accordance with the standards formulated for that purpose by the American Society of Refrigerating Engineers.

The largest attendance of manufacturers and manufacturers' representatives ever recorded was present at the meeting and heard D. Norris Benedict, association president, and vice president and general manager of Frick Co., declare that the decided improvement in business conditions have been reflected in the increased sales of refrigerating machinery.

Ezra Frick, president of Frick Co., and Henry Vogt, president of Henry Vogt Machine Co., two of the oldest members, were elected to honorary membership in the association in recognition of their notable contributions to the progress of the industry and the association.

Ellsworth C. Alvord, former assistant secretary of the treasury and special tax assistant to former Secretary of the Treasury Mellon, was the guest of the association and led a forum discussion on current tax legislation.

Willis H. Carrier, chairman of the board of Carrier Engineering Corp., who had just returned from a trip around the world, said that in his belief, most of the countries, and especially the British Dominions, are substantially ahead of the United States in economic prosperity.

South Africa is experiencing unprecedented prosperity as a result of world demand for gold and the high prices prevailing, said Mr. Carrier, and the Rand mines are producing gold at peak capacity.

Mr. Carrier outlined his personal observations of the results of the two widely differing governmental policies in the neighboring dominions of Australia and New Zealand. In New Zealand, he said, government regulation and regimentation of business and agricultural activities have resulted in business stagnation, unemployment, lack of confidence, increased taxation, and a mounting public debt.

Australia, however, only a few years ago faced with virtual national bankruptcy as a result of political profligacy, had no further funds with which to experiment, Mr. Carrier said. Rigid economy and measures encouraging to industry and commerce were adopted with increased employment and prosperity as the outcome.

John W. O'Leary, president of Machinery and Allied Products Institute, and former president of the United States Chamber of Commerce, was guest speaker at the association luncheon. Mr. O'Leary spoke of the need for a greater understanding by the general public of the leading role machinery has played and can play in the employment of a large part of the population of the United States.

"Ten Facts on Technology and Employment," published by the Institute, presents an unanswerable argument refuting the claims of those who hold that the unemployment problem in the United States can be solved only by a general return to production of goods and services by manual processes and the abolishment of machinery or machinery improvement, Mr. O'Leary declares.

In the RMA golf tournament, H. Bissell Carey, president of the Automatic Refrigerating Co., won the L. B. Von Weise Trophy and Tray from the largest field ever to enter the annual event.

Other prize winners were: G. T. Pepall of Toronto, Can.; J. K. Knighton, Kelvinator Corp.; Lee Nusbaum, Pennsylvania Engineering Co.

'American Home' Is Sales Help for Head Of Electric Concern

COLUMBUS, Ohio—Constructed as part of the G-E New American Home building program, the new house recently completed for Fred R. Price, president of the Price Electric Co., here, constitutes an effective sales tool for its owner, since in it is demonstrated all types of domestic electrical equipment which can be adapted to homes of any price range.

Mr. Price, who is an electrical engineer, determined to do a model job of mechanization in his new house, on the theory that the electrical dealer should practice what he preaches.

Eight miles of electric wiring are installed in the house. It is equipped with a year-round air conditioning system, a G-E automatic gas furnace, an all-electric kitchen which contains a G-E refrigerator, range, dishwasher, ventilating fan, towel, drier, radio, mixer, and waste disposal unit.

Washer, ironer, and auxiliary laundry equipment also are included, and there is a vacuum-cleaner mechanism connected with every room. Two sun-lamps, a radio, and a telephone, are installed in the bathroom.

Of English design, the house is built of native stone, and has low, graceful lines. It was built at a cost of approximately \$3,000, and in addition to being part of the G-E program, it was presented to the public through

the Columbus Dispatch's better homes movement.

Included as part of the eight-mile wiring system are 43 ceiling outlets, 77 side switches, 28 sidewall outlets, and 96 receptacles. There are also five motors, ten push-buttons, five return-call bells, seven telephone outlets, six radio outlets, 11 night lights, and 12 sets of three-way and four-way switches. There are 30 circuits in the house.

A 200 ampere service underground master switch controls all hall and outside lights from the master bed room.

Salesman Demonstrates 'Demonstration' to Class, Makes Sale

PLAINFIELD, N. J. — If public speaking is your strong suit, you may be able to get a tip from Fred R. Cavers, manager of the Home Service Appliances, Inc., G-E dealer here, who turned salesmanship into a sale.

Invited to speak before the salesmanship class of the North Plainfield high school, Mr. Cavers spoke on "The Demonstration," and stressed buying motives and decisions, and the advantages of the proof action-selling process.

Four days later the teacher of the class brought his wife down to the dealer and ordered a refrigerator.

The Home Service Appliances, Inc., which also operates a branch store in Perth Amboy, N. J., is a dealership of Philip H. Harrison & Co.

E. E. I. Program for Conclave in St. Louis June 1-4 Announced

(Concluded from Page 1, Column 3)

Industry, speakers will discuss such important and timely subjects as the various aspects of utility accounting, the cost of electric service, the trend of rate reductions, the present aspects of utility financing, firm ratings as a guide to system loading and design, public relations, employees' attitude in the present era, farm electrification, and the outlook for the electric power industry.

A considerable part of the program will be devoted to the sales efforts of the industry, with particular attention to the national sales programs promoted cooperatively by E. E. I.

Harper Sibley to Speak

Guest speakers will include Harper Sibley, president of the Chamber of Commerce of the United States; Philip Cabot, professor of business administration, Harvard university; Lewis H. Carris, managing director, National Society for the Prevention of Blindness; and Dr. E. A. White, of the Committee on Relation of Electricity to Agriculture.

The five business sessions of the convention will be held in the air-conditioned opera house of the Municipal Auditorium. First one will begin at 2:30 o'clock Monday afternoon, June 1; the second at 9:30 o'clock Tuesday morning; the third at 9:30 o'clock Wednesday morning; the fourth at 2:30 o'clock Wednesday afternoon; and the fifth at 9:30 o'clock Thursday morning.

With President Thomas N. McCarter presiding, the first general session will open with an address of welcome by Louis H. Egan, president of Union Electric Light & Power Co., host to the convention.

Opening Session

The session will be devoted largely to the economics of the light and power industry. Norman R. Gibson, vice president and chief engineer for Buffalo Niagara & Eastern Power Corp., will speak on "The Cost of Electric Service"; W. G. Vincent, vice president and executive engineer of Pacific Gas & Electric Co., will follow with a history and comment on rate reductions in the industry.

L. R. Nash, vice president of Stone & Webster Engineering Corp. will lead a symposium on classification of accounts with an address on "Fundamentals of Accounting." H. L. Gruhn of Consolidated Gas, Electric Light & Power Co. of Baltimore, will have "Aboriginal Cost" as his theme; H. B. Gear, vice president of Commonwealth Edison Co., will speak on "Continuous Inventories"; C. E. Kohlhepp, Wisconsin Public Service Corp., on "Cost and Economic Value of Accounting Elaborations"; and W. H. Swinney, West Penn Power Co., on "Merchandising Accounting."

Features of the second session will be Mr. McCarter's presidential address, and talks by J. F. Owens, president of Oklahoma Gas & Electric Co., Mr. Sibley, and George E. Whitwell, vice president of Philadelphia Electric Co. and chairman of the Nema E. E. I. Kitchen Modernizing Bureau.

Formal title of Mr. Whitwell's address is "Modernize—Electrify Your Kitchen." Mr. Sibley will survey "American Enterprise."

S. M. Dean of Detroit Edison Co. will open Wednesday morning's session with a paper on "Firm Ratings as a Guide to System Loading and Design," after which C. W. Kellogg, chairman of Engineers Public Service Co., will speak "Present Aspects of Utility Financing."

Electricity on the Farm

W. W. Freeman of Columbia Gas & Electric Corp., chairman of a special utility committee on farm electrification, will talk on "Relations of the Industry and the Rural Electrification Administration." Dr. E. A. White of the C. R. E. A. will speak on "Using Electricity on the Farm"; E. A. Brand, Niagara Hudson Power Corp., on "New Developments in Farm Wiring"; and E. A. Silver, consulting engineer of Ebasco Services, Inc., on "Developments in Farm Lines."

Fourth session, Wednesday afternoon, will be devoted chiefly to sales problems. Opening with a talk by Dr. G. W. Allison, E. E. I. field representative, on "National Sales Programs Create Better Understanding," it will include addresses by Frank T. Post, president of Washington Power Co., on "The Campaign to Destroy," and by Mr. Carris on "A National Program for Prevention of Blindness and Conserving Eyesight."

Air Conditioning Discussion

A symposium on air conditioning will be led by Vice President C. E. Michel of Union Electric. Title of his address will be "A Review of the Utilities' Position in the Air Conditioning Field." Discussion of "Room Cooling with Portable Units" will be

made by R. H. Tillman of Consolidated Gas, Electric Light & Power Co. of Baltimore; and W. G. Moore of Texas Power & Light Co. will discuss "House Ventilation Through the Attic."

The session will close with a review of "Three Decades of Utility Sales Development," by C. E. Greenwood, commercial director of E. E. I.

Fifth session, on education, personnel, and public relations, will be opened with an address by Dr. Adam S. Bennion of Utah Power & Light Co., "How Can They Know?" Prof. Cabot of Harvard university will next discuss "The Outlook for the Electric Power Industry."

Frank W. Smith, chairman of the Institute's prize awards committee, will make the annual presentation of prizes administered through the Institute. These include the Charles A. Coffin award; the H. M. Bylesby prizes; the B. C. Forbes prize; the A. L. Linderman prizes; the Thomas W. Martin award; the Augustus D. Curtis award; the James H. McGraw prizes; and the George A. Hughes award.

The session will close with announcement of new officers, and the handling of routine business affairs.

Snyder & Kobick Tell Dealers about Kitchen Modernization Market

BIRMINGHAM, Ala. — Electrical dealers, architects, and contractors in the Birmingham district heard an explanation of the field of kitchen modernization in detail from Carl M. Snyder of New York City and George D. Kobick of Cleveland, both of General Electric Co., at the recent two-day meeting arranged by the Birmingham Electric Co. and the Matthews Electric Supply Co., local G-E distributors.

Unit kitchens have been developed which sell for as little as \$475, well within the reach of families with modest incomes, Mr. Kobick stated.

Figures showing that only 50 homes out of 52,000 in Birmingham have what might be termed all-electric kitchens illustrate the great field for the sales of companion units, he said.

Declaring that the General Electric Co. sold enough merchandise as a result of its "New American" home building program to pay for the whole endeavor, Mr. Snyder urged the Birmingham Electric Co. to sponsor some sort of home show in Birmingham.

Other speakers at the dealer meetings included: Holland E. Cox, vice president in charge of sales of the Birmingham Electric Co., Barney DeRamus, residential sales manager of the same company, and Gordon Smith of the Matthews Electric Supply Co.

Model	Storage Capacity	Shelf Area	No. of Ice	No. of Cans	Lbs. of Ice	Exterior Dimensions
No.	Cu. Ft.	Sq. Ft.	Trays	Cubes	Ice	Height Width Depth
4-S	4.4	8.2	1	42	2.84	49 1/4 23 1/4 23
5-S	5.45	9.5	2	63	4.04	56 24 1/2 26 1/2
6-D	6.65	12.83	2	63	4.04	56 28 1/2 26 1/2
7-D	7.70	15.08	3	84	5.24	56 31 1/2 26 1/2
8-D	8.7	15.83	4	105	6.44	56 35 1/4 26 1/2

Matched PISTONS! Matchless PERFORMANCE!



Copeland
COMMERCIAL REFRIGERATION

JUST one important reason for the smooth, effortless performance of Copeland Commercial Units, is the piston matching operation. Each pair of Copeland pistons must pass under a scientific measuring device which assures a balance and piston clearance of very close tolerance. This tolerance is far closer than common in fine motor car practice. The result is matchless performance plus much longer life. It will pay you well to investigate the quality Copeland line - and pay you better to sell it. Write for territory opportunities.

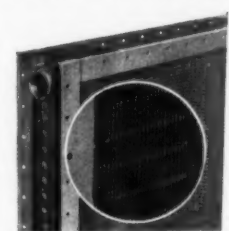
COPELAND REFRIGERATION CORPORATION
Manufacturers of a complete line of Household and Commercial Refrigeration
Holden Ave., at Lincoln - - DETROIT, MICH.

Copeland
DEPENDABLE Electric REFRIGERATION

TRANE DEALERS!

ARE HAVING THEIR BIGGEST YEAR

IT'S ALL IN THE COIL



The secret of TRANE Air Conditioning Equipment's success is in the famous TRANE Light-Weight Heat Transfer Surface now in use in some of the foremost heating and cooling installations throughout the country. TRANE Coils are made in a complete range of types and sizes for both direct expansion and water.

1936 is a banner year for TRANE Dealers—a banner year because they not only have the greatest, most complete line of residential, commercial and industrial equipment to sell, but also the 1936 Trane Sales Plan is geared to handle the rising market.

If you are properly qualified, you can line up in the TRANE profit parade. There are many wonderful territories yet uncrowded and TRANE sales, as large as they are, have only scratched the surface of potential business.

Write us complete details about yourself and your Organization and we will be glad to explain the TRANE Sales Plan to you.

THE TRANE COMPANY
LA CROSSE WISCONSIN

Branches in All Principal Cities

In Canada: Mount & King Sts. W. Toronto

SELLING TRANE AIR CONDITIONING IS PROFITABLE

WOLVERINE TUBING the

First Necessity to Good Refrigeration

The Tubing does the cooling in refrigeration. Without it, the compressor is only a pump, and the regulators have nothing to regulate. Good tubing is the first necessity to good refrigeration installations.

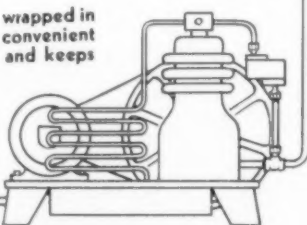
Wolverine Refrigeration Tubing is of uniformly high quality. It meets A.S.T.M. specifications B 68-33. Drawn from 99.9% pure copper, it is finished bright inside and outside, thoroughly dried and sealed with the Wolverine "W" to protect it against moisture.

Temper is uniformly soft, making it easy to bend, cut, or fabricate. Available plain or electro-tin-plated, and in coils 25, 50 and 100 ft.

"Packaged Coils"

Wolverine Tubing in coils is supplied securely wrapped in heavy crepe paper, providing a compact, convenient package which completely protects the tubing and keeps it clean and bright until used. Size and length are clearly marked on the outside of the package.

Large stocks carried for immediate delivery in all sizes.



WOLVERINE TUBE CO.

SEAMLESS COPPER

BRASS & ALUMINUM

1411 Central Ave.

Detroit, Mich.

H. M. ROBINS CO., Export

LEONARD celebrates its 55TH anniversary



fifty-five years of Growth...

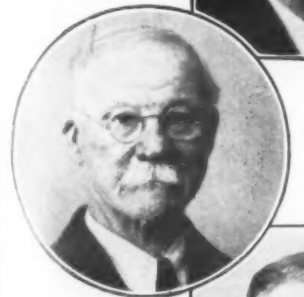
**BEHIND THE SENSATIONAL
REFRIGERATOR OF 1936**



**43 YEARS
WITH
LEONARD**
George Robinson
has worked
continuously
since 1891.
He is machine
room super-
intendent.



43 YEARS
This is Joe De
Vos who started
with Leonard in
1893.



43 YEARS
George Rob-
inson, was
superinten-
dent, Trim
and Crate de-
partment for
over 30 yrs.



37 YEARS
Lewellyn Weaver
started in 1899.
He worked for
many years in the
wood sanding
department.



33 YEARS
Evert Mel-
lem began
his associa-
tion with
Leonard in
1903. He has
been an in-
spector for
25 years.

In May Leonard—with appropriate ceremonies at Grand Rapids—celebrates 55 years of refrigerator building, a record which culminates this year with the production of the sensational electric refrigerator of 1936.

In these fifty-five years Leonard attained some remarkable "firsts" in connection with the development of domestic refrigerators. To list just a few:

- 1881—Leonard made the first "cleanable" refrigerator
- 1884—Leonard built the first "side-icing" refrigerator
- 1906—Leonard built the first one-piece porcelain interior
- 1910—Leonard built the first all porcelain refrigerator
- 1921—Leonard built the first refrigerator designed for electrical operation
- 1927—Leonard built the first all steel cabinet
- 1932—Leonard introduced the famous Len-a-dor pedal door opener

In other words, Leonard has far more to celebrate than 55 years of life. In its eventful history it has contributed more than its share to the development of refrigeration. That's one side of the celebration.

THE LEONARD PLANT EMPLOYS MORE MEN THAN ANY OTHER FACTORY IN GRAND RAPIDS

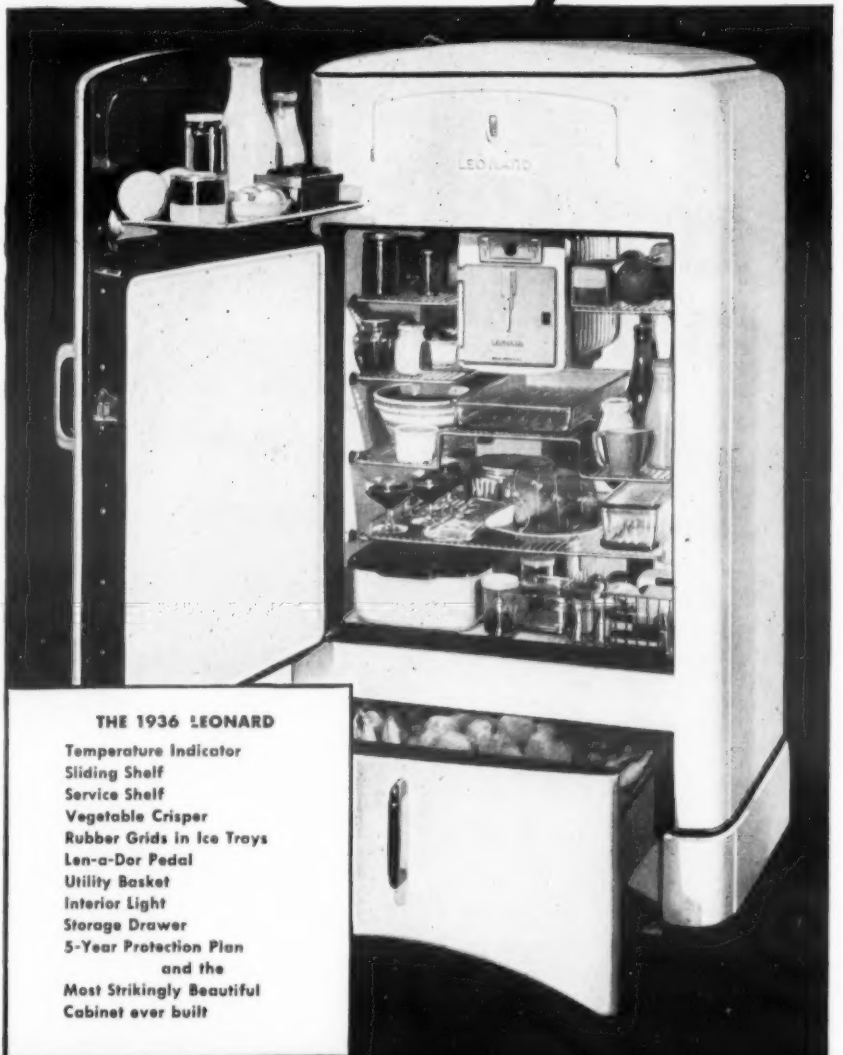
Leonard is not only justly proud of its growth but also of the thousands of men and women who through the years have worked faithfully and skillfully in building fine refrigerators. Many of the employees who started with Leonard in the early days are still with the company. The pictures show just a few of them. Naturally these old-timers will be the most honored guests of Leonard's 55th Anniversary Celebration.

And these are the things which are behind the great Leonard of 1936. The spirit of the pioneer, the skill of able craftsmen and the determination of all to make a better product with every year.

LEONARD REFRIGERATOR COMPANY, DETROIT—GRAND RAPIDS, MICHIGAN



Through the years, Leonard has backed its product with national advertising campaigns. Here's one of the first refrigerator advertisements ever published, featuring the Leonard Cleanable Refrigerator. Publication: Ladies' Home Journal. Date: 1890.



THE 1936 LEONARD

- Temperature Indicator
- Sliding Shelf
- Service Shelf
- Vegetable Crisper
- Rubber Grids in Ice Trays
- Len-a-Dor Pedal
- Utility Basket
- Interior Light
- Storage Drawer
- 5-Year Protection Plan and the
- Most Strikingly Beautiful Cabinet ever built

LEONARD

**The Sensational
refrigerator of 1936**

Commercial Uses

Savings as High as 40% in Operating Costs With Freon Condensing Units over Ammonia System Shown in Survey

NEW YORK CITY—Savings as high as 40% in the operating costs of restaurant refrigeration systems through replacement of non-automatic equipment with modern Freon condensing units are claimed in a recent survey made locally by C. A. Pearson, national commercial supervisor of York Ice Machinery Corp.

Monthly power bills were secured from modernized restaurants, showing (1) the power consumed with the old equipment, and (2) power purchased during corresponding months of the year with the new. Results give a powerful sales argument for the modernization of restaurants with new economical refrigerating units.

Cost Reduced \$76.30 a Month

Typical case was in the Blue Ribbon Restaurant on W. 44th St., where a 4x4 ammonia compressor, using a 7½-hp. motor, had been used to cool a large meat refrigerator, vegetable room, beer box, wine room, kitchen refrigerator, dairy box, display case, and back bar.

After modernization with a 3-hp. York Freon condensing unit, operating cost of the equipment was reduced an average of \$76.30 a month. The following tabulation gives a month-by-month comparison of "before" and "after" power bills:

	Ammonia (7½-hp. Motor)	Freon (3-hp.)	Saving
February	\$ 315.75	\$ 253.84	\$ 61.90
March	307.65	254.91	52.74
April	328.78	198.86	129.92
May	323.27	206.26	117.01
June	318.29	225.42	92.87
July	359.37	268.39	90.98
August	297.16	257.19	39.97
September	298.28	273.28	25.00
Total	\$2,548.55	\$1,938.15	\$610.40

Monthly figures on power consumption were also secured from the Drug and Chemical Club on John St., where an old ammonia system had been replaced with a new Freon unit.

Power Used Cut 40% a Month

Savings at the Drug and Chemical Club, the study showed, totaled 11,618 kwh., or 40% of the power require-

ments before the new equipment was installed.

In addition to the savings in operating costs, Mr. Pearson found, savings in labor costs have been made possible due to the automatic operation of the new equipment.

"Where it was frequently necessary to have an operating engineer on hand over week-ends to tend to old-style equipment, additional savings are now effected with automatic equipment through elimination of attendance costs," Mr. Pearson pointed out.

Comparative figures of power consumption on the installation at the Drug and Chemical Club were:

	Kilowatt-Hours Ammonia	Freon
January	2,256	1,171
February	2,123	1,666
March	2,234	1,586
April	2,635	1,546
May	2,700	1,499
June	3,740	1,991
July	3,379	2,009
August	3,516	1,982
September	3,134	1,813
October	2,887	1,723
Total	28,604	16,986

Stephenson & Jones Form Sales & Service Firm In Baltimore

BALTIMORE — Formed to operate as a combined refrigeration sales and service business, the Perfect Refrigeration Co. was opened here recently at 625 West North Ave. The firm is handling the Westinghouse line, and offering service on all makes of refrigeration equipment, including both domestic and commercial units.

W. M. Stephenson and W. A. Jones head the concern. Mr. Stephenson was for 10 years with the refrigeration service department of local Norge and Frigidaire distributors, and for four years in business for himself here, under the name of the Perfect Refrigeration Service Co. Mr. Jones was formerly sales promotion manager of refrigeration activities for a New York department store.

M-H Adds 2 Branch Offices; Builds Test Bungalow at Plant

MINNEAPOLIS—As a part of its expansion program, Minneapolis-Honeywell Regulator Co. has recently made a number of changes in personnel and has extended the facilities of its main and branch offices.

Two new district offices, one in New Orleans where Paul E. Seepe will be in charge, and the other at Charlotte, N. C., where Karl Selden will be in charge, are just now being established.

Other changes include: a shift of address for the Detroit office from 2847 Grand River to larger quarters at 415 Brainard Ave.; and at the Providence district office, a move from 803 Industrial Trust Bldg. to 397 Elmwood Ave.

The European branch office of the company, formerly at 233 Heeren-gracht, Amsterdam, Holland, has also been moved to new and larger quarters at Wydesteeg-4 in the same city, and has added the sales and service of Brown Instrument line, reports George B. Benton, advertising manager.

At the company's main office here, nearly 50% more floor space is provided by the new addition to the plant and office.

On the top of the new wing, an experimental bungalow of frame structure has been built to the usual specifications for dwellings in that territory, insulated in the normal manner, and with the usual construction throughout, Mr. Benton says.

It is equipped with the necessary duct work for air conditioning, and provision has been made for heating, either by warm air, steam, or hot water.

Directly beneath the house is the test department of the engineering division in which are located boiler, furnace, and air-conditioning equipment by means of which any desired method of heating or air conditioning may be applied to this house for experimental purposes and research, the company heads say.

A double purpose of providing research facilities and office comfort was served in the installation of three complete air-conditioning systems to provide air conditioning for offices and engineering department on the entire sixth floor and a portion of the fifth floor.

Cooling apparatus has a capacity of an equivalent of 248½ tons of refrigeration. This installation, the officials say, will give an opportunity for first-hand study of various means of operating air-conditioning equipment and various control applications.

Fastener-Frostbreaker Lock Built by Kason

BROOKLYN—Kason Hardware Co. has recently put on the market a new fastener-frostbreaker for refrigerated truck bodies.

Known as Model K-63, the frost-breaker is equipped with a tamper-proof cylinder lock, which works like the snap-lock on an apartment door, and permits automatic locking of the truck door between deliveries. The lock may also be keyed so it will not snap shut automatically, if this feature is not desired.

Primarily a fastening device for the heavy door of the refrigerated truck body, the lock holds the door air-tight, and keeps it in place by means of a special gear fastener. Airtight sealing of the door guards against cold air leakage from the body of the truck.

These gears also act as a frostbreaker, in the event the door of the truck freezes shut.

Lock handle is so constructed as to make either right or left side door application possible without the necessity of carrying spare parts. When the door is opened, the handle drops down, eliminating the hazard of striking the truck's body. Tension of the handle can be automatically adjusted to take up any play in the door when the gasket becomes flattened.

Constructed of brass, the lock is available in either chromium or nickel plate finish.

Counter Freezer Installed In Cafe's Window

MARQUETTE, Mich. — Bon Ton Cafe, 312 S. Front St., has installed a counter-type ice cream freezer and has placed it in a display window where it meets the demands for daily production of fresh ice cream in small amounts, the owners report.

Although the machine has a capacity of 40 gals., the cafe will make smaller amounts in order that the supply will be fresh.

Thirteen minutes is required to freeze a capacity-load of the ice cream, which comes from the machine in bulk and is packed in cups, pints,

Westinghouse Beverage Cooler



Westinghouse's new bottled beverage cooler is finished in orange, with black trim, and has a double lift-top. The cooler is powered by the company's standard hermetically sealed condensing unit, and carries a five-year warranty.

Westinghouse Markets Portable Beverage Cooling Unit

MANSFIELD — Westinghouse Electric & Mfg. Co. has just put on the market a new self-contained portable bottled beverage cooler of 120 six-ounce bottle capacity, with provision for storage of additional quart bottles, designed for use in restaurants, soft drink parlors, soda fountains, roadside stands, and amusement parks.

The cooler is powered by Westinghouse's ½-hp. hermetically sealed condensing unit, and is covered by the company's regular five-year warranty plan. For operation, it is only necessary to plug the cooler's cord into the nearest outlet.

Cabinet is finished in orange enamel on heavy steel, with chrome trim. The two lift-top doors and the recessed sub-base are finished in black enamel, providing a pleasing contrast to the orange cabinet as well as protection against scuffing.

Casters are provided as standard equipment, for easy portability of the unit.

The cooler is 42 in. long, 22½ in. deep, and 37 in. high. Storage tank is constructed of heavy galvanized rust-resisting steel. Bottle rack is diamond-shaped expanded metal, allowing free circulation in the cooling chamber. Heavy insulation is provided on all sides.

Automatic control is provided to assure maintenance of correct temperatures.

The hermetically sealed unit, together with oversize cooling coil, provides ample cooling capacity, Westinghouse engineers claim.

Kramer Appoints Five Field Representatives On Refrigeration Line

TRENTON, N. J. — The Trenton Auto Radiator Works, manufacturer of Kramer cooling surface here, has recently appointed five new field representatives in its refrigerating sales organization.

Appointed to represent the company in Philadelphia and eastern Pennsylvania is Harry Klingler, formerly with Melchior, Armstrong & Dessau; in the New England district, Herbert H. Skinner (previously with American Engineering Co.); in the New Jersey territory, Jack Lacey.

Clifford W. Thorn of the company's Trenton office staff is now a member of the Pittsburgh branch sales force, and Frank B. Hutchins of the engineering staff has been appointed to handle sales to national manufacturers, and to represent Kramer in the Washington-Baltimore territory.

With its Spring sales representing the largest low-side sales volume for the period in the company's history, the recently enlarged Trenton plant is now working on a double-shift basis in its refrigeration and air-conditioning equipment manufacturing departments, officials also announced at this time.

Refrigerated Barges to Be Given Trial Run On Mississippi

BIRMINGHAM, Ala. — Refrigerated barges, designed for cheaper transportation of perishables, will be given a test soon by the Inland Waterways Corp., declares Maj. Gen. T. Q. Ashburn, corporation president.

Within six weeks, he said, four units, each carrying 52 barrels of beer, would be in regular operation between St. Louis and Chicago.

The system eventually will be used, Ashburn predicted, for transportation of vegetables, fruits, dairy products, meats—all the food that are perishable, whether they require only cooling or freezing.

Florida, with a market for citrus fruits in the Midwest, he said, could use river barges to advantage. Vegetables from that state and elsewhere in the South could move by barge into the intracoastal canal, thence to the Mississippi, and finally into Midwestern cities, he said.

Ashburn said the refrigeration unit contemplated for the barges costs only \$1,200 to build, and each is capable of carrying five tons.

CONDENSERS EVAPORATORS

33 years specialized experience in this field has qualified us to give you intelligent, practical engineering cooperation on both electric refrigeration and air conditioning applications, large and small.

LONG MANUFACTURING DIVISION
BORG-WARNER CORPORATION
DETROIT, MICH.
WINDSOR, CAN.

LONG

McCord

Refrigeration
and Air Conditioning
PRODUCTS

- CONDENSERS
- COMMERCIAL EVAPORATORS
- DOMESTIC EVAPORATORS
- COMFORT COOLERS
- MARKET COOLERS
- AIR CONDITIONING SURFACE
- UNIT HEATERS
- BLAST HEATING SURFACE
- CATALOGS ON REQUEST

McCord Radiator & Mfg. Co.
DETROIT, MICH.

Fedders Equips Two Rival Fisheries for Storage & Freezing

ATHOL SPRINGS, N. Y. — Two interesting and successful applications of commercial electric refrigeration in the storage and freezing of fish immediately after the catch is brought ashore are in use in this Lake Erie town in the adjoining plants of two rival fishermen—Michael Deisler and William J. Schwartzott.

The two plants required the same service—storage space for their catch, and at the same time facilities for quick freezing of fish that were to be held for any appreciable time.

The Deisler installation, designed to handle 600 lbs. of fish, uses a 3-hp. Carrier-Brunswick water-cooled condensing unit, with methyl chloride as the refrigerant. Fedders fluted fin non-frost evaporators are mounted at the ceiling of the storage room. Directly below are two tiers of Fedders finless coils, which form the racks taking the freezing trays.

The Schwartzott installation is designed to handle 400 lbs. of fish. Refrigeration for the system is supplied by a 2-hp. condensing unit, using methyl chloride as the refrigerant, and automatically controlled.

In this system the coils are located on the side walls of the refrigerating room. Finless evaporators, arranged in five tiers at one end of the room, form the shelves for freezing trays.

Fedders thermostatic expansion valves are mounted on the evaporators and finless coils in both systems.

Both systems were engineered and installed by Cooney Refrigeration Co., Inc., distributor for Carrier Engineering Corp., operating through New York state and part of Pennsylvania.

Pressure Switch for Small Units Built by Cutler-Hammer, Inc.

MILWAUKEE — A new pressure switch for the automatic control of small compressors and fluid pumps has just been put on the market by Cutler-Hammer, Inc., here.

Although the switch is new in design, its basic mechanism is the same as that which Cutler-Hammer has in use in thousands of household electric refrigerators.

The switch is enclosed in a compact all-metal "airstyled" case. Features claimed for it include flexibility of application, full automatic action protection to motor, and ease of wiring, adjusting, and inspecting.

Pressure connection for S. A. E. fitting is furnished as standard, but 1/4 or 3/8 inch pipe fitting may also be used. Inverse time limit overload protection is obtained by Cutler-Hammer's eutectic metal thermal overload relay, operating directly on the contacting mechanism. This gives protection to the motor during starting and running, and allows an ample time interval to take care of starting inrush and momentary overloads without tripping.

A red band on the reset button indicates when the switch is open and the equipment shut down. Pressing the button resets the overload and places the starter back in service. Equipment may be shut down by simply pulling out the reset button.

The split-type enclosing case and mechanism design permits easy access to terminals and adjusting screws. Case is easily removed by loosening one self-locking type screw.

Dry-Zero Gets Insulation Job for 2700 Freight Cars

CHICAGO — Insulation for 2,700 new refrigerator cars for Pacific Fruit Express has been ordered from Dry-Zero Corp., reports Harvey Lindsay, president.

Three and one-half million square feet of three-inch Dry-Zero refrigerator car blanket will be used to insulate the entire superstructures of the cars.

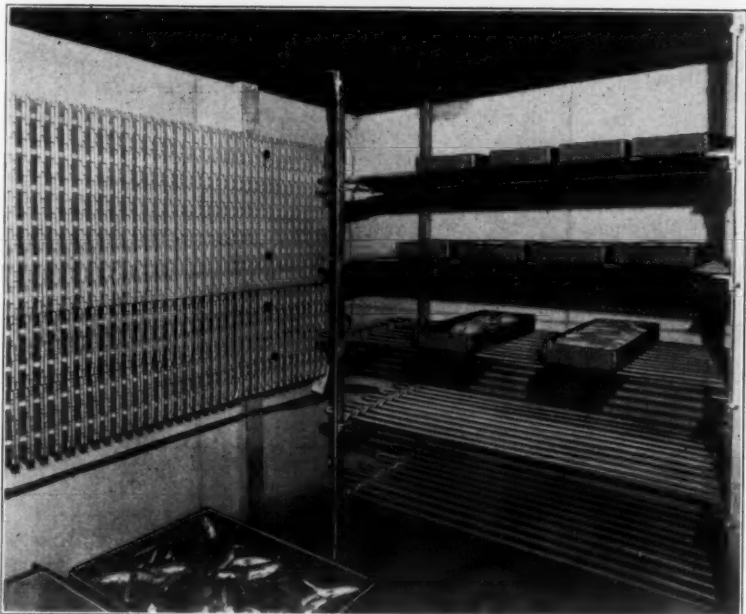
This is reported to be the largest refrigerator car order in many years, if not for all time. It is understood that 500 cars each are to be built by Pullman, General American, American Car & Foundry, and Pacific Car & Foundry. The remaining 700 cars are to be built in Pacific Fruit Express' own shops in California.

Buffalo Store Installation Uses Fedders Coils

BUFFALO — Leue & Sons, long-established retail meat firm here, recently modernized its store and installed Hussmann-Ligonier cases fitted with Fedders fluted fin coils.

In one case a 15 ft. coil with two model 33 thermostatic expansion valves is used, and in the other case is installed a 10 ft. coil with one expansion valve.

Freezing Fresh Fish Fast



Fedders coils cool the catch in the 400-lb. capacity storeroom of William J. Schwartzott, Athol Springs, N. Y. Five tiers of finless evaporators are used as freezing tray shelves. A 2-hp. methyl chloride unit is used.

Drug Store Sells 350 Gal. of Ice Cream a Week

CINCINNATI — A sales average of 350 gals. of ice cream a week during summer months, and 200 a week as a yearly average is the record of the Habig Drug Store, which makes its own ice cream with a counter freezer located at the front of the store.

William Habig, Jr., son of the owner, and a graduate pharmacist, has made ice cream and its sale his hobby for the last five years.

Personal solicitation, window, and store signs have increased the business. He claims making the ice cream takes him on a yearly average of an hour a day.

Last summer, Mr. Habig featured new flavors of his own origin such as nectar-pineapple, pineapple-pecan, and fresh plum and peach sherbets. He usually carries eight flavors of ice cream and four of sherbet.

Reduction from the regular prices of 50 cents a qt. for ice cream and 40 cents for sherbet, to 45 cents a qt. for ice cream on Saturdays and Sundays sells as many as 20 gals. of the one flavor during those two days, he says.

The store has its own cylindrical containers, made so that the bottom may be shoved through, pushing the ice cream out in one roll-shaped piece so that it is easily sliced.

The mix Habig uses costs 97 cents a gal., and from 10 gals., 18 gals. of ice cream are made.

Salesman Gets Five Commercial Orders In One Day

NORRISTOWN, Pa. — Five commercial sales in a single day is the sales record which W. W. Schoneley, salesman for Woodland Electric Co. here established recently.

First, Mr. Schoneley sold a brewery two compressors for cooling a beer storage box in one of its branch warehouses. Then he convinced an independent beer distributor he should install a 1/2-hp. job for the same purpose.

A hotel was Mr. Schoneley's next customer. Here he sold a unique installation consisting of a 1/2-hp. compressor supplying refrigeration to a 6x6x8 storage room in the basement, connected to an air tight tapping box on the first floor. The cold air from the storage box is blown through the duct to the tapping box, thereby keeping the beer cool all the way and eliminating the coils.

Later in the same day, Mr. Schoneley sold a butcher display case, cooled with a 1/4-hp. compressor.

Century Whitaker-Upp Unit To Be Used on Truck Fleet

OMAHA — Fairmont Creamery Co., operating through a dozen Central states from headquarters here, has purchased six new straight truck and trailer-type ice cream bodies equipped with Century Whitaker-Upp power systems for refrigeration units, made by Century Electric Co., St. Louis.

The truck bodies were built by Batavia Body Co., Batavia, Ill.

Increased business and a demand for up-to-date transportation and refrigeration equipment prompted the purchase, according to R. V. Carlson, purchasing agent of Fairmont Creamery Co.

The equipment will be used by the company on its runs in Minnesota, Kansas, Arkansas, and Oklahoma, where climatic conditions are more than ordinarily severe in the summer.

New Fedders Baffles Improve Circulation Of Air Over Coils

BUFFALO — Active circulation over the entire coil with a minimum restriction of air flow, plus ease of installation, are claimed for the Fed-R-Vex drain baffles for use under all types of commercial coils recently introduced by Fedders Mfg. Co.

Condensate, or "sweat" from an upper row of troughs is caught by the lower row. This double deck construction is said to minimize the possibility of sweat dripping from the lower row.

By being furnished knocked-down, the Fed-R-Vex drain baffles can be assembled as they are installed, right on the job. Crossbrackets are hung in position under the coil by means of adjustable hanger hooks. The troughs are then set in position on the crossbrackets one at a time. This is said to eliminate awkward handling and heavy lifting, and makes it possible for one man to make an overhead installation.

Truck Bodies Transferred To New Chassis after 2 Years of Use

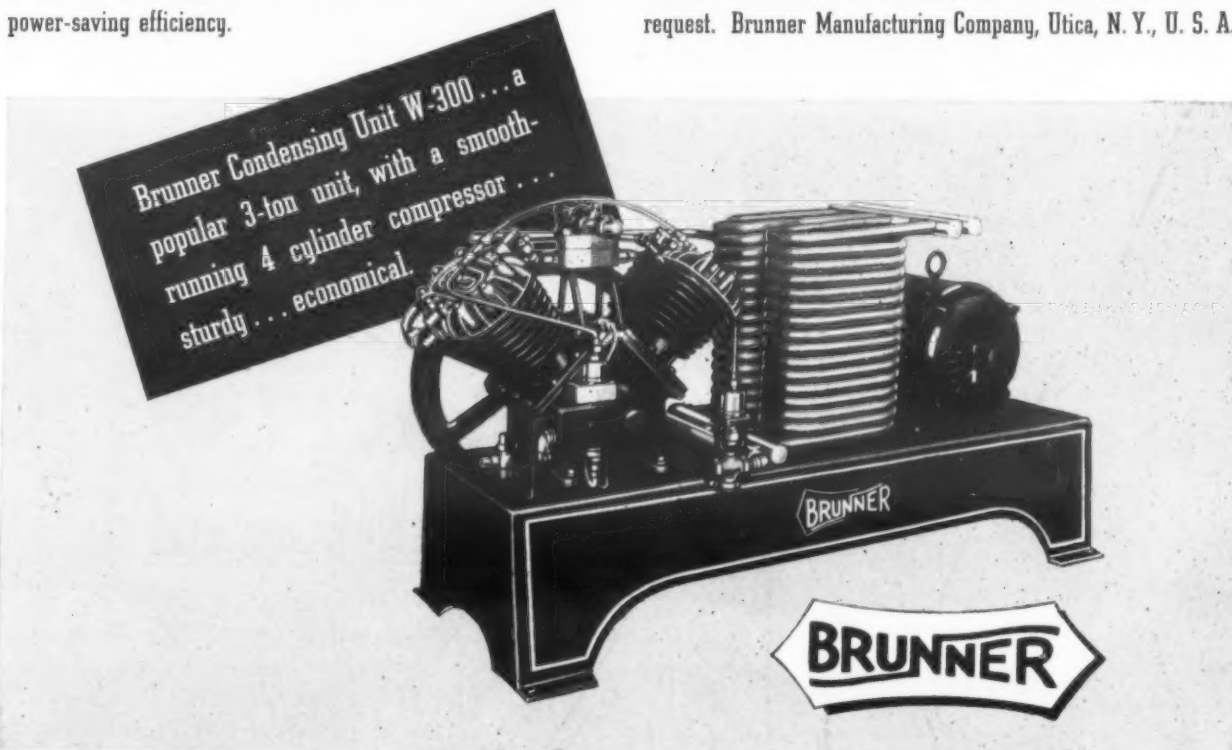
SCHENECTADY — With a service record of approximately 100,000 miles each in the last two years, six G-E refrigerated truck bodies were recently removed from their worn-out truck chassis and placed on new mounting to continue refrigeration service for a company in Atlanta, Ga., according to a report received at the General Electric Co. offices here.

Run on a schedule of three two-day trips each week, average weekly mileage covered by the trucks is between 1,200 and 1,500 miles. Both the truck chassis and the refrigerating bodies have been subjected to severe service by the speed required to cover long delivery routes, many of which are over gravel roads.

"Say...I'D CALL THAT Plush Padded SILENCE"

That's the first thing the owner of a new Brunner Refrigeration Unit said. The only sound he could detect was a gentle purr! Truly, "plush padded" silence. ★ ★ A good many years of study, experience and mechanical skill have made possible, not only this quiet smoothness of operation, but the many companion qualities — Brunner dependability, for example, and freedom from repairs, power-saving efficiency.

Team up with Brunner. Share in the satisfaction which has lifted Brunner Condensing Units and Compressors to so prominent a position in the Industry... Remember: there's a Brunner unit for almost every refrigeration need... forty-one condensing units, eight compressor models; from 1/6 H.P. to 15 H.P.; air and water cooled; electric motor or gas engine driven. Complete details on request. Brunner Manufacturing Company, Utica, N. Y., U. S. A.



BRUNNER CONDENSING UNITS and COMPRESSORS

Nation Must Choose Between Competition & Regimentation, Sloan Says at Los Angeles

LOS ANGELES—Laying down a program for industry to follow based upon three main points: (1) lowering of costs and prices; (2) acceptance of competition as the best way to regulate industry's relationships; (3) striving for a more economic balance of national income, Alfred P. Sloan, Jr., president of General Motors Corp., in speaking before the Los Angeles Chamber of Commerce last Friday declared that a program founded on these principles would bring the greatest amount of wealth to the people of America.

Taking as his subject the problem, "Shall We Have More—Or Less," Mr. Sloan took sharp exception to the economic doctrines expounded by leaders of the present National Administration. Excerpts from his address follow:

Management to Have More

"Now, how shall we manage our affairs in order that we may have more? Right there the difficulty begins. Let us examine the various proposals and the discussions surrounding them. We find reflected great differences of viewpoint as to the fundamentals involved and as to the most desirable approach to our objective. Perhaps, after all, that is to be expected, for there is no doubt that our economic machine today is exceedingly complicated. There is no doubt that even those who know the most about it know far too little. There is no doubt that none of us can be any too certain.

"Let us consider some of this thinking. First, we find a difference of opinion within industry itself. As a matter of fact, it is difficult to determine what really is the belief of organized industry today as to the fundamentals.

Views of Price Structure

"Some industrialists believe that the proper approach is to move continually toward a lower cost of goods and services. As a matter of fact, that has been largely the policy of American industry down through its entire history. This particular group believes that more employment and more wealth can be created by always lowering prices. By this is meant, always giving more for the same money, or the same for less money. They believe that competition should be the dominating urge of accomplishment, the survival of the fittest in the interest of the greatest number.

"On the other hand, we find the diametrically opposed viewpoint expressed in an interesting discussion recently by the Chief Executive of our Nation who, in an address made in New York, in discussing his economic and political beliefs, made the following statement:

"Reduction of costs of manufac-

ture does not mean more purchasing power and more goods consumed. It means just the opposite."

"I sincerely hope that we may have a very broad discussion of that rather astounding pronouncement before we reverse our industrial technique. I cannot believe that this means what it really says. It must be based on the belief that a reduction in the cost of manufacture means a reduction in the wage scale. That is not necessarily so; in fact, it should not be so.

"It can be demonstrated beyond any reasonable doubt, that those industries which have been most successful in reducing costs of goods and services and expanding their markets have, at the same time, paid the highest wage and have continually raised that wage through evolution.

Hard to Reconcile Philosophy

"It would naturally follow from what our President stated that if the reduction of costs decreases consumption, then an increase of costs should increase consumption. It is impossible to reconcile that philosophy with the past record and today's experience.

"The President also stated that costs of industrial production could be reduced by the development of new machinery, new technique, and by increased efficiency—all, of course, true. He does not think that development should be discouraged, neither does he intimate that it should be encouraged. He is evidently concerned with the quite general belief that it means fewer workers employed and, therefore, more unemployed.

"Now I do not think that is so. I believe that if we reduce the cost of goods and services by greater efficiency, by better technique, and thus are able to make lower prices, we shall stimulate the market, because more can buy. Hence more jobs and more things for more people. That, at least, has been our past experience and it is still the fact today.

Stabilization, Regulation, Regimentation

"Other groups in industry believe in what is called 'stabilization'—an intriguing word. It conveys the thought that the peaks and valleys of the industrial cycle, the depressions, and periods of excessive prosperity which cause so much distress, may be minimized—good times always, so to speak. But in this sense 'stabilization' means 'regulation,' and regulation ultimately means 'regimentation.' Regulation of industry is only possible by government acting in the interests of the worker, the consumer, and ownership. But government must act through bureaucracy.

"Now let me say a word about governmental bureaucracy. Bureau-

cracy is costly not only from the standpoint of the tax payer—we certainly realize that—but in dissipating human energy. It takes not only a great, but an ever increasing number of workers from productive industry; hence, instead of adding to the creation of wealth, there is a continually increasing burden placed upon those others who are producing wealth. Bureaucracies not only slow down, impede, and postpone the realization of every one's natural right and the possibilities for more things, but they definitely limit such possibilities.

Economic Law Ignored

"Political consideration becomes the potent influence; economic law is ignored. I do not hesitate to say that if America takes the road marked 'stabilization,' bureaucracy will be the first step; regimentation of industry the second; and the end of the road, however long it may be, will be state socialism. That is inescapable. We do not need to look far afield to see this very process in evolution.

"Economically speaking, stabilization means a higher price level—usually sufficiently high to protect all but a few producers. It also means an umbrella over the inefficient. It means the discounting of individual aggressiveness and ability; it means penalizing the new and better to protect the vested rights of the past. It is a direct attack against the American system. It would eventually eliminate the American system.

Demands of Labor

"Certain groups, not only inside of industry but outside, apparently believe in this philosophy. Some labor spokesmen assume this mistaken philosophy by demands for a price for labor beyond what the buyer can afford to pay. Some of our railroads believe in it insofar as they believe it sounder to carry fewer passengers at a higher rate rather than more at a reduced rate. The present economic beliefs of our government are, I am quite sure, inclined toward that viewpoint. We have had the NRA, the AAA, the Guffey Coal Act, and the like. And there seem to be in the offing rumblings with respect to some new form of NRA. Let us hope that we may escape.

"However, we may as well accept the fact that that philosophy is quite a popular philosophy. I am not certain but that it is the most popular economic philosophy in this country today—perhaps it is natural that it should be. If that be true, and if that is to be our approach, it is most unfortunate for those who want more—they certainly will have to accept, not only less, but always less than otherwise would be possible.

Must Choose Course

"I previously mentioned that we have in the making momentous decisions as to our economic policies. America must decide between two opposing principles of industrial operation; competition, on the one hand, or regulation and ultimately regimentation by government, on the other. The latter, to my way of thinking, offers the only practical substitute for the former; the issue is plainly before us. However objectionable industrial competition may be to some, or all of us, we must consider the results of the only alternative.

"So far as I am concerned, I am convinced that competition offers the only solution to the perfectly natural desire and right of more people to have more things, and especially the only opportunity to afford the full

employment of our workers in the production of wealth. It seems perfectly plain that if the exchange of labor for goods and services, or one form of goods or services for another, can only take place on the basis of arbitrary terms set by the seller, irrespective of their value to the buyer, and if no one will work at less than a stated wage irrespective of the value of that wage in terms of goods and services, then we might just as well recognize and accept permanent depression, permanent unemployment, a continuous dole, and make the best of it.

Economics of Auto Industry

"Now I have previously referred to the record of the automotive industry. It might be interesting to review the relationship of its economic policies to those that we have just been discussing. Having been intimately associated with that industry since its beginning, I can say that there are two principles that it has always rigidly adhered to, and still has greater faith in than ever.

"The first: it has always moved toward a greater dollar value.

"The second: it has always believed, and has always acted upon the belief, that its own progress and the greatest urge for accomplishment come from the influence of free competition and the exercise of individual initiative. There is nothing so satisfying to the average automotive executive as to find himself in a position where he can do better for the customer.

"Nor does he take that position because he is a philanthropist. He has found from actual experience, over a long period of time, that as he offers more for the dollar, he increases both his volume and the return he is able to make to investors. He has also demonstrated, to his loss, that the contrary is likewise true. In continually moving toward lower costs of goods and services our automotive executive spares no expense.

Proud of High Wages

"The automotive industry takes pride in paying, has always paid, and I hope always will pay the highest wage of any major industry. Today, its wage scale is higher than ever before in its history. In addition, it has contributed liberally toward the economic and social advancement and security of its workers.

"One thing is perfectly evident today. Those who have followed the practice of lowering the cost of goods and services are the ones who show the smallest amount of unemployment and have therefore made the most progress toward recovery. On the other hand, those who have followed, to some extent, the principle of stabilization, have progressed the least and are, today, still the most depressed.

"Now I appreciate that this problem of more goods for more people is a complicated and involved one. That is necessarily so. I should like, however, to point out certain economic principles that, according to my experience and my analysis of America's industrial problems, industry should follow in working toward our objective:

"First. I urge continuing, more aggressively if possible, to move for a constant lowering of costs and prices. I am sure that an intelligent industry will not defeat that objective by reducing the real wages of the worker, but will reach it by continually improving its producing technique. It should not hesitate to employ more and more mechanization. Although

that policy will be attacked by those who believe that the machine creates unemployment, every fact indicates that, in the final analysis, it means more—not less—because of the stimulation that comes from the increased ability to consume through broadening the market and bringing goods and services within the reach of a greater number.

Should Accept Competition

"Second. It should accept competition as the best instrumentality for regulating industry's intricate relationships. While industry might well adopt reasonable standards of conduct, such as fair trade practices, a minimum wage and the like, it must be definitely recognized that when such policies tend to become monopolistic in character or when they tend to limit uneconomically the competitive urge, and let us admit frankly this is too apt to be their real objective, then we pass from competition, and regulation by government bureaucracy becomes inevitable.

"Third. Industry should strive for a more economic balance of national income through policies affecting the relationships of the wage scale, the hours of employment, the price level, and the profits resulting from industry's productivity.

Discussion of Suggestions

"Now let us look at our complete platform. The first plank presupposes that industry must strive for the most economic use of labor and material, the highest technique of management, and the capitalization of the most efficient instruments of production—the purpose manifestly being to bring prices within the range of the greatest number.

"The second recognizes that the most effective urge for accomplishment and for the maintenance of flexibility and balance within our productive machine, having in mind the most things for the most people, must come through the survival of the fittest rather than the protection of the inefficient—economic law as against political expediency.

"The third recognizes that, irrespective of what we may accomplish in expanding our markets from without, we must, to the most effective degree possible, develop the greatest possible consuming power from within. There lies our greatest opportunity. In other words, through a better economic balance within industry's component parts we shall be able to stimulate consumption by making every worker, executive, and wage earner the maximum possible consumer, as well as the most efficient possible producer.

Establish Fundamentals

"You may say that the practical application of such an economic platform is a difficult matter. I do not think that this is necessarily so. The real problem is to establish the fundamentals, whatever they may be, to separate them from all the panaceas and the loose thinking—natural by-products of the great depression—and then courageously and aggressively to set our course accordingly.

"America is at the crossroads; it must decide. The marvelous resources of nature, combined with human energy and capitalized through the agencies of science and industry, offer unlimited possibilities for more; our ever-expanding horizon of action resulting from continually increasing knowledge justifies the belief that there can always be more; yet less, and much less, is in the offing. What is to be our decision?"

The ANSUL Twins



Champions OF THE REFRIGERANT FIELD

Back a champion by specifying Ansul Sulphur Dioxide and Ansul Methyl Chloride. Every cylinder is guaranteed through an individual analysis to provide complete refrigeration satisfaction.

ANSUL CHEMICAL COMPANY
MARINETTE • • • • • WISCONSIN

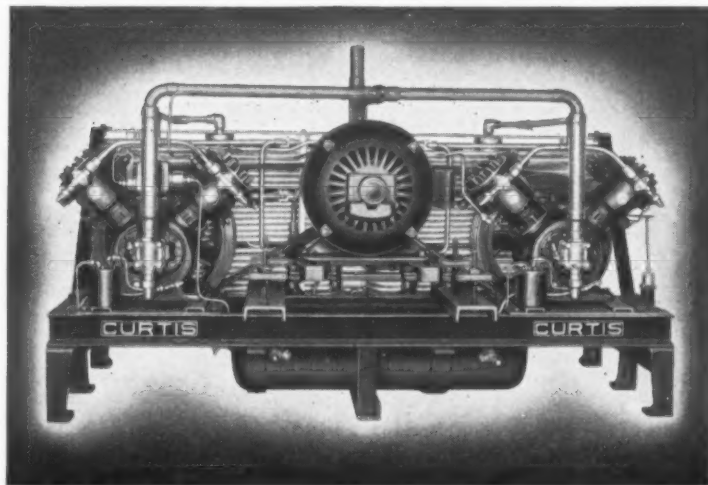


CURTIS

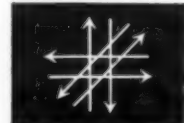
SCORES AGAIN

CURTIS pioneered the "V"-type Timken-roller-bearing equipped, pressure-lubricated refrigeration compressor which, at the time, was an innovation—now a generally adopted design.

Now CURTIS pioneers with a compact 30 Ton Dual Unit incorporating two proven "V"-type compressors driven by one motor.



Dual design permits automatic capacity control for variable air-conditioning loads.



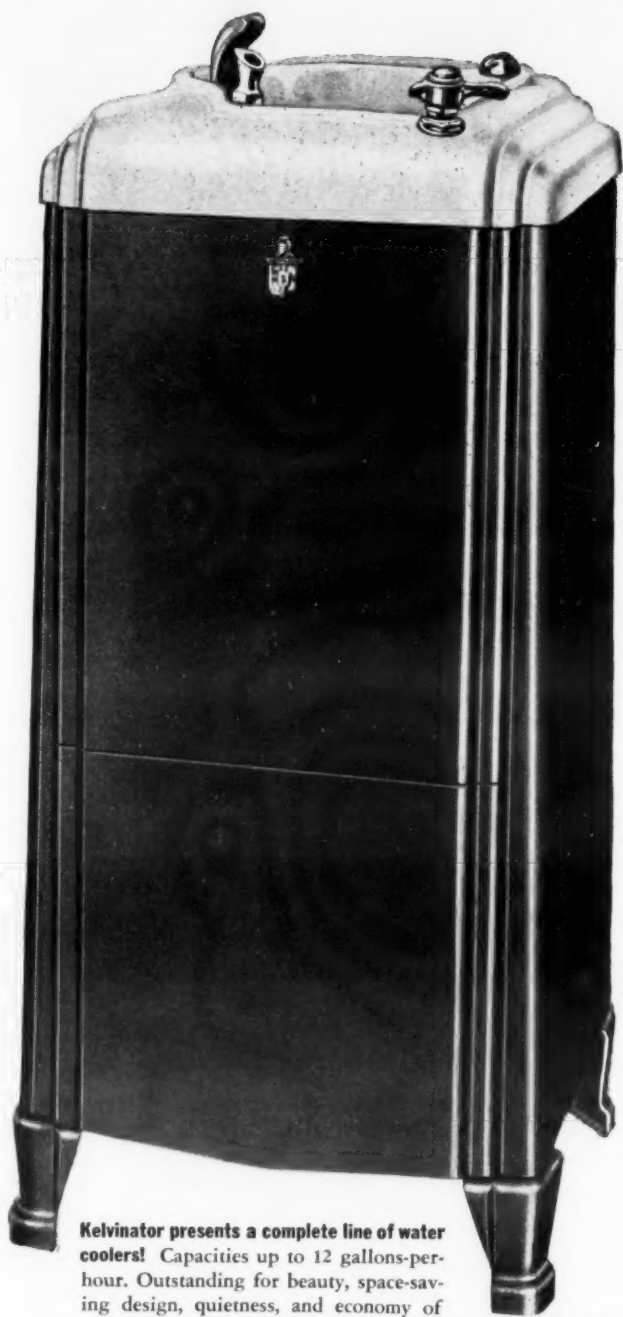
Belt adjustment provided in all directions instead of usual vertical only.

A complete line of units up to 30 Tons.

CURTIS

CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Company
1912 Kienlen Avenue, St. Louis, Missouri

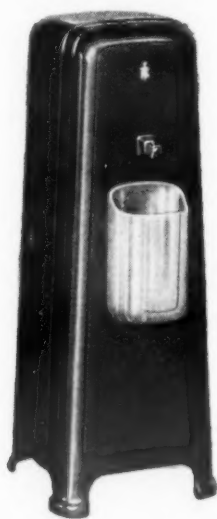
In Canada: Canadian Curtis Refrigeration Company, Ltd., 20 George Street, Hamilton, Ontario, Canada



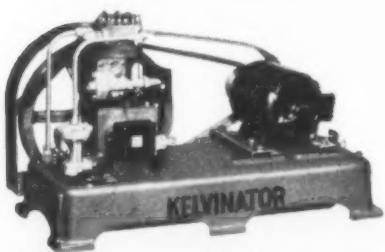
Kelvinator presents a complete line of water coolers! Capacities up to 12 gallons-per-hour. Outstanding for beauty, space-saving design, quietness, and economy of operation. All industrial heavy-duty models equipped with special dust and lint traps, and water cooled condensing units.



Bottled water coolers in sizes from 1 to 4 gallons-per-hour capacity. Model illustrated available with or without refrigerated storage compartment.



One of the lowest priced electric water coolers on the market, 1 gallon-per-hour capacity. Other faucet type Kelvinator models up to 6 gallons-per-hour capacity.



Kelvinator condensing units, for water cooling service, are available in sizes from 1/4 to 20 h.p.



The Kelvinator instantaneous-type unit cools the water at the tap or bubbler. Available for all requirements of multiple cooler installations.

Complete Coverage of the Water-Cooler Market!

Another Reason why Dealers call the Kelvinator Commercial Franchise the Full-Profit Franchise

Wherever there's a water cooler need, there's a prospect for the Kelvinator Commercial Refrigeration Dealer. No job too big . . . no requirement too severe! The Kelvinator line is complete—provides the right type, the right size, the right capacity unit for each water cooling purpose.

That's why Kelvinator dealers have been able to sell every class of prospect, that's one big reason why they are getting their full share of the water cooler profits!

● Liberal Finance Terms That Open Up New Markets

Dealers say that Kelvinator's attractive financing plan is another big advantage in their favor. Kelvinator's own credit organization handles the paper—the plan is specially designed for refrigeration dealers, enables them to obtain much business that might be unavailable under ordinary terms.

Full Kelvinator Backing

The water cooler situation typifies the profit-position of the Kelvinator commercial dealer in every field of temperature control. He loses no business for want of the right equipment. He never has to quote on a unit too large, at a price disadvantage—or too small, at a sacrifice of performance. He enjoys every advantage of Kelvinator's fair prices and fair policies.

And, he has products of recognized quality, plus the backing of Kelvinator's factory advertising to his customers, proved merchandising programs, and able engineering cooperation! No wonder so many dealers say—"I wouldn't give up my Kelvinator Franchise for anything else in the industry today."



KELVINATOR

LIQUID COOLING • AUTOMATIC HEATING • AIR CONDITIONING
COMMERCIAL REFRIGERATION

Around the World

With George F. Taubeneck

George Arrives in Paris

A radiogram received last Saturday announced the arrival of the News's editor in Paris. He has recently visited Australia, Java, Straits Settlements, India, Egypt, Palestine, and Spain.

Another message which arrived Tuesday, just as this issue was going to press, states that he will leave Paris on Friday (May 29) for Milan, Rome, Vienna, Budapest, Zurich, Geneva, Amsterdam, and The Hague.

Mr. Taubeneck will arrive at The Hague about the middle of June where he will attend the International Congress of Refrigeration and deliver a paper on "The Development of the American Household Electric Refrigeration Industry."

His address at The Hague (Holland) will be the Hotel Terminum.

Brisbane, Queensland

Definitely the Australian city with the most promising future, Brisbane is full of bustlers. It seems more American even than Sydney. Its business men have the Rotarian spirit; they have civic pride and consciousness, are anxious to "get together" and do things which will speed the arrival of Brisbane's (and Queensland's) place in the sun.

Literally speaking, Brisbane already has a place "in the sun," for it's at the edge of the tropics. From May to September—which is winter in Australia—Brisbane becomes a resort city. Sun shines daily, the air is comfortably dry, and the facilities for sports are excellent. Difference between the mean annual high and low temperatures is gratifyingly small to the resident.

At present the population of Brisbane hovers around the 350,000 mark, which is about half the figure for Queensland. But inasmuch as Brisbane is the gateway port to the growing commerce with the Dutch East Indies, India, and the Orient, and considering the possibilities for developing both primary and secondary industries in rich and fertile Queensland, younger Brisbane residents confidently expect to see the day when their city will be the metropolis of Australia.

Sugar, wool, and beef are the mainstays of Brisbane just now. Victoria Downs, upstate in Queensland, in proportion to the population, is almost staggering; but it pays good dividends.

Composed of all firms, the Brisbane Wool Selling Association conducts 10 sales between September and June, at each of which 50,000 bales are put up at auction. Some wool is shipped to the London Market and some is taken away by Japanese buyers.

Durham, Shorthorn, Polled Angus, and Hereford cattle roam the great open spaces of Queensland. Most of the cattle raised here end up at the great Brisbane abattoir, where the meat is frozen or chilled for both Australian and export trade. Some 20,000 tons of chilled beef leave the Brisbane abattoir in ships annually.

With almost 8,000,000 cattle running on Queensland ranges, that state now

leads all others in Australia on that score. Sheep in Queensland are said to number 20,000,000, and horses 500,000.

Sugar is another of the great primary industries which Brisbane serves as the nerve-center. Italians have done much of the work on the sugar plantations. Many of them own their own plantations. In the early days, they would pool their wages draw lots for the entire sum, and buy land with their winnings. Eventually a great many Italians acquired valuable sugar-growing land by this process.

German farms are also in evidence near Brisbane, although they go in for cotton, tobacco, maize, and truck farming, as well as sugar. They make good dairy farmers, too. Greeks run 90 per cent of the restaurants and fish markets.

Brisbane business men insist that the Greeks, Italians, and Germans of Queensland are eminently honest, always have money, are good business men, and make respectable citizens. They'll take all they can get of these races in Queensland.

Chief fly in the ointment of the ambitious, proud residents of Brisbane is taxation. They pay a five per cent sales tax on everything they buy, plus both state and commonwealth income taxes, land taxes, import duties, amusement taxes, and a shilling out of each pound earned weekly for unemployment funds and old age pension.

Brisbane is not exactly an ocean port. Steamers which visit Brisbane travel inland up the wide Brisbane river, which is navigable—for big boats—for 20 miles from its mouth. But the city is spreading, oh how it is spreading, in the direction of the seacoast very rapidly.

From One-tree Hill one can see how great an expanse this city covers. Lots of space it takes. The citizens must have "elbow room."

An imposing City Hall (extravagant, some claim), a magnificent State Treasury building, a handsome Government Printing Office, the 10-story State Insurance building, and many other fine office buildings, public buildings, and churches—all erected comparatively recently, give Brisbane a most modern appearance.

Howard's, Ltd.—Brisbane's Best



Officials of Howard's, Ltd., Brisbane Electric-Icyball distributor, found at work by George Taubeneck's candid camera. Above, left: W. J. Strachan, director of the company. Right: Frank Sully, manager of the refrigeration department, dictates a list of Brisbane dealers for George's convenience. Below, left: P. H. Phillips of Lovelock's Queensland office at lunch with L. L. Skinner, secretary of Howard's. Right: George Reid, Howard's assistant manager.

Howard Motors—Founded 30 Years Ago

When the *Marella* hove to alongside the momoth abattoir just outside of Brisbane, quite a party was waiting to greet us. They included P. H. PHILLIPS, Queensland representative of F. C. Lovelock, Ltd., and the following gentlemen from Howard Motors: W. J. STRACHAN, vice chairman of directors; G. C. REID, assistant manager; S. F. SULLY, sales manager of refrigeration department; S. B. CHAPMAN, production manager, refrigeration department; and C. E. SKINNER, secretary.

Immediately they whisked us up to a point where we could get a fine view of the city, and then up to the summit of One-Tree Hill (like the volcanic knob of this name in Auckland, there are a number of trees on the crest) where we could survey even better the wide-spreading city of Brisbane, which occupies about three times much territory as any city of 350,000 population you'll ever see.

Later we were taken on a tour of the extensive Howard Motors premises, and then to lunch at the exclusive Brisbane Club, of which Mr. Strachan (pronounced "Strawn") is a past president.

Howard Motors was founded 30 years ago by Mr. Strachan and JAMES HOWARD, chairman of the directors. Mr. Howard's son, VAL, is now manager.

At first they manufactured and sold bicycles, later going into the automotive business. According to Mr. Strachan, they "had Buick before General Motors did, and Chevrolet when it was a poor automobile."

After building this business, the Messrs. Howard and Strachan had to relinquish it to General Motors. Next they took on the franchise for Nash and Morris (English) motor cars.

One of Mr. Strachan's good truck customers was selling electric refrigerators about nine years ago, and so Mr. Strachan bought one. It worked so well, was so service-free, that he decided he'd like to assume the agency himself, and did.

Covering a territory of 2,000 square miles in Queensland, Howard Motors is leading the state in refrigeration sales with Warburton, Franki (Frigidaire) second in household, Waugh and Josephson second in commercial.

This firm also has the agency for Crosley Icy-Ball refrigerators, but has practically had to give up their sale since the Hallstrom unit came on the market.

The Icy-Ball can undersell the Hallstrom by as much as eight pounds (\$32), but Australian buyers object to the necessity of lifting the unit to and from the tank of water—a task which has been eliminated in the Hallstrom.

Rolls-Royce

GORDON HIMWOOD, a fine figure of a man, is manager of the Australian General Electric Co., Ltd., which has offices, curiously, in the Kelvin House on Adelaide St., Brisbane.

Mr. Himwood was most courteous to us when we called, as were C. BINNIE, refrigeration sales manager, N. R. JOHNSTON, assistant manager, Miss NOELINE STEVENS, secretary to Mr. Himwood (who was out first time we called), and Miss N. OUSBY of the refrigeration department.

Until the current season the G-E Monitor Top refrigerator has been sold as "the Rolls-Royce of refrigeration" to "the bloke with a hundred quid to spend."

Now, however, a Monitor Top may be purchased for as low as 87 pounds or "quid" (about \$268). Most popular seller is the 5 cu. ft. box, which retails for 77 pounds, 10 shillings. Next best seller is the 6 cu. ft. job, after which comes the four.

All are sold on a four-years' guarantee—the units being shipped back to the United States when failure occurs. Australian General Electric does not sell commercial refrigeration, although you can find practically the whole catalog of G-E and Hotpoint electrical appliances in the showrooms.

According to Mr. Binnie, A. G. E. must depend on floor traffic for sales in Brisbane, as the laws of Queensland forbid the hiring of salesmen on commission only, and the Company does not feel it would be profitable to pay them a salary.

This concern had allowed its subscription to ELECTRIC REFRIGERATION NEWS to lapse, but Mr. Himwood declared he would write the head office in Sydney and try to remedy this situation immediately.

Buzacott's Q'd.

Buzacott's of Queensland is in the business of selling farm machinery and dairy equipment to the farmers and cattle and sheep station operators in that state.

During the last couple of years this firm, of which R. D. HUISE is managing director, has been selling Westinghouse refrigerators, washers, and

Australian Display Rooms



Above: P. H. Phillips, Queensland representative of F. C. Lovelock, Ltd., who took time off from his work to show George Taubeneck the refrigeration sights in Brisbane, chats with W. J. Ross, sales manager of Waugh & Josephson's Brisbane branch. Below: A portion of the showroom of Howard's, Ltd., showing some of the Electric models which the company advertises "for every trade, purse, and purpose."

vacuum cleaners, too, throughout the territory.

Outside salesmen are used in Brisbane, but it was the opinion of F. G. PATTEL, sales manager, that the people were "too poor" to buy sealed-unit machines in any quantities. The machines come from America, the cabinets from the Roseberry works in Sydney. A four years' guarantee is maintained, with the machines being shipped back to America when faulty.

Careful Reader

A close student of ELECTRIC REFRIGERATION NEWS is W. J. ROSS, Queensland sales manager of Waugh & Josephson (see Sydney story on W & J). He converses well and fluently on a great deal that he's read in the News, particularly the editorials.

People in Australia, he avers, have been sold refrigerators, rather than refrigeration. He firmly believes that there's a great field ahead for the sales organization which will send trained salesmen out from house to house in Australia presenting the story of economy and good health through electric refrigeration, instead of playing upon pride of possession.

Toward this end he intends to place in the Brisbane sector next year a separate crew of salesmen to push household refrigerators only.

In the Brisbane plant are made

W & J complete household refrigerators, small sulphur dioxide compressors, and some commercial cabinets.

P. H. Phillips

Besides representing F. C. Lovelock & Co. in Brisbane, P. H. PHILLIPS has the local agency for a large number of diverse lines. Hence he is a busy man.

Even so, he took time off from a busy day to show me around Brisbane, to introduce me to refrigeration men, and to take me up in his office in old Clock House and give me a geographical lesson with a big map of Queensland. He was most helpful.

Tremendous Distances

ALLEN L. WARBURTON of Warburton, Franki (Frigidaire) also impressed upon us the tremendous distances they have to contend with in the territory of Queensland. From Brisbane to Cairns, for instance, is as far as from Brisbane to Melbourne (1,043 miles).

Going up the coast on the Queensland railroad, Rockhampton is 396 miles from Brisbane, and Townsville 832 miles. These cities then serve thousands of square miles inland, using feeder rail lines, and roads where the railways do not extend (Concluded on Page 9, Column 1)

Some Brisbane Dealership's



Above, left: The Brisbane headquarters of Warburton, Franki, Ltd., Frigidaire distributor in Australia. Right: Office of Waugh & Josephson. W. J. Ross (with coat off), sales manager, and P. H. Phillips of Lovelock's Queensland branch, are on the sidewalk. Below, left: Buzacott's (Queensland), Ltd., Westinghouse headquarters. Right: J. B. Chandler & Co., refrigeration engineers, Kelvinator representative.

Selling General Electric in Brisbane



Left: Charles Binnie, manager of the refrigeration department of Australian General Electric Co., Brisbane, inspects one of the new Monitor Top models with his assistant, Nell Ousby. Right, Miss Ousby and Mr. Binnie look on as Noeline Stevens, secretary to Manager Gordon Himwood, poses inside the Monitor top.

(Concluded from Page 8, Column 5)
(the government will not permit highways to be built parallel to the railways). Freight rates are very high.

Keeping track of his 25 agents (who do not stock, but who do their own service work) is no small task for Mr. Warburton. Warburton, Franki also has the agency for Wagner motors, which they put on all Frigidaire equipment they sell.

The Roster

A complete list of Brisbane refrigeration dealers follows:

Trackson Bros. Ltd., Electrical Engineers, 157-159 Elizabeth St., Brisbane, Sperton; Norman Bell & Co. Pty., 403 Adelaide St., Brisbane, Genelex; J. B. Chandler & Co., 43 Adelaide St., Brisbane, Leonard-Kelvinator; Carnegie Bros., 210 Queen St., Brisbane, Sperton; Buzacott's (Qld) Ltd., 443 Adelaide St., Petrie Bight, Westinghouse; Waugh & Josephson Ltd., 102 Melbourne St., W & J; Warburton, Franki (Brisbane) Ltd., 233 Elizabeth St., Brisbane, Frigidaire; W. H. Paling & Co. Ltd., 86-88 Queen St., Brisbane, Marco and Paling household, manufactured by Emmco; King & King Ltd., 77-81 Queen St., Brisbane, Sub-distributor for Electric and Master's Voice; Australian General Electric Ltd., Kelvin House, 30-32 Adelaide St., Brisbane, G-E; Lawrence & Hanson Electric Co. (Qld), 85-87 Elizabeth St., Brisbane, Wynward; G. J. Grice Ltd., 90-92 Queen St., Brisbane, Fairbanks-Morse; Howards, Limited, Adelaide St., Brisbane, Electric.

Townsville

Queensland, Australia

Because of time lost in rescuing a distressed freighter at sea (which experience we shall relate more in detail later) the *Marella* stopped but an hour and a half outside of Townsville.

Passengers were not allowed to go ashore (unless Townsville was their destination) but fortunately B. S. GOADBY, Townsville branch manager of the Australian General Electric Co., was awaiting our arrival, and came across to the *Marella* on the tender which brought the mail.

It was 10 o'clock at night when we hove to outside of Townsville, so you can appreciate how we appreciated Mr. Goadby's thoughtfulness.

He told us that probably no more than 70 household refrigerators had been sold in Townsville, which is a city of approximately 29,000 inhabitants. Most of these are Frigidaires, with Electric and General Electric trailing.

Electric has been getting most of the commercial business, which has been fair. No air-conditioning installations have been made in the city.

Hot and Humid

Admittedly air conditioning would be a great boon in this hot and humid climate. So is refrigeration.

One of the chief problems in Townsville is getting and keeping fresh vegetables—and the only answer to that problem, of course, is more and better refrigeration.

Townsville is the port connecting with the Mt. Isa mines which produce silver and lead and (since the very recent introduction of the sulphite process) zinc. The *Marella* took aboard the first load of zinc from these mines.

Sugar, though, is the mainstay of the region. The government "assigns" land to plantation operators, keeping vast acreage "unassigned" to prevent overproduction.

Once a year this fertile, rain-drenched soil bears a crop of sugar cane. The raw crystals (which are exceptionally pure and free from molasses) are exported to the London market.

After sugar and mining come wool and meat as chief products of the

area which Townsville serves as an outlet.

Swift & Co. freezes and chills meat in a big plant here for the export trade. A member of the Swift family

had just visited Townsville a few days before our arrival.

There are practically no wealthy families in Townsville. Those who have made money in the adjacent

territory generally move to a more temperate climate. The population is not poor, being largely middle class.

Houses in Townsville are constructed as porous and open as is consistent with safety and stability. Rugs are seldom seen, being deemed heat-catchers. (Hence Townsville is a poor market for vacuum cleaners.)

Customary Australian sports—cricket, rugby, tennis, golf—are indulged in here, despite the climate. And there are eight racing meets annually, which the entire town and countryside turns out to attend.

Across the channel from Townsville (the *Marella* was anchored at a point about midway between the two) is Magnetic Island, which is of so ferrous a nature that it draws compass needles. The island was named by the famed Capt. Cook, who was first to notice the phenomenon.

Magnetic Island is a holiday resort for Queenslanders, with year-round surfing, tropical surroundings, and decent accommodations.

Refrigeration dealers in Townsville include the following firms:

Australian General Electric Co. (G-E Monitor Top)
B. S. Goadby, manager, Box 29.

S. W. Davids & Son (Frigidaire) Flinders St.

Percy Davids, manager.

Hillman's, Ltd. (Electric)

B. Hillman, manager

Flinders St.

Henry Berry & Co. (Howard-Electrice)

A. Moss, manager

Stokes St.

Esca (Engineering Supply Co. of Australia), Ltd. (Serval)

R. G. Steele, manager

Sturt St.

J. B. Chandler & Co. (Kelvinator)

(Snow-Man—made by Kelvinator)

A. Alexander, manager

Flinders St.

Buzacott's, Ltd. (Westinghouse)

W. McClean, manager.

Flinders St.

Warren Josephson, Ltd. (W&J)

Mr. Jones, manager

Flinders St.

W. Connelly, Ltd. (Copeland)

W. Connelly, manager.

Flinders St.

Grice's, Ltd. (Fairbanks-Morse)

Mr. Musgrave, manager

Flinders St.

Paling's, Ltd. (Howard nameplate—Electric)

P. Dawson, manager

Flinders St.

WORSE THAN FIRE!

NO WONDER

Customers are Asking..



ISN'T THERE ANY ELECTRIC REFRIGERATOR THAT USES A *Safe* REFRIGERANT?

Grunow

PIONEERS IN PROTECTION!

Vacuum Circulation, Perfected ONLY by GRUNOW, Permits Use of CARRENE, the Super-Safe Refrigerant!

Of the 32 manufacturers in the home electrical refrigeration field, Grunow is still the only one that stresses safety. Grunow electrical refrigerators will help you make sales to that rapidly increasing number of women who demand protection for themselves and their families.

Grunow alone has perfected a vacuum circulating system—no pressure to blow out weakened or corroded connections in old boxes—no gas-filled homes to send people gasping and choking into the street. Grunow alone uses the super-safe refrigerant, CARRENE—

non-inflammable, non-explosive, non-suffocating.

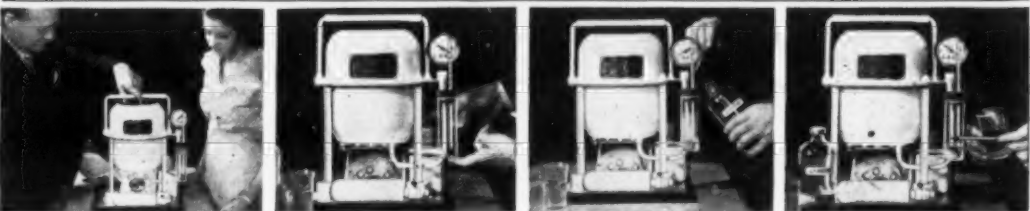
And, of course, Grunow provides every other vital selling factor. Lower current consumption... smart styling... fast freezing... all of the expected convenience features of a modern electric refrigerator.

Write at once, or wire us collect, for franchise details.

GENERAL HOUSEHOLD UTILITIES COMPANY
CHICAGO, ILLINOIS—MARION, INDIANA

Manufacturers of Grunow Super-Safe Carrene Refrigerator
Grunow Household Radios • Grunow Automobile Radios

SALESMEN PRAISE AMAZING HOME DEMONSTRATION UNIT!



Here is the only home demonstrating unit for electrical refrigerators in existence today. The prospect sees the temperature drop from 80 above to 40 below zero in sixty seconds, as

CARRENE is exposed to the Grunow vacuum circulating system. You make ice before their eyes! A door opener—easy to handle—most convincing sales tool ever put in your hands.

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MAY 27, 1936

The "Fear Appeal" In Advertising

GRUNOW is at it again! Last year we thought that he had definitely decided to discontinue the emphasis upon the refrigerant in his advertising.

When we received the proof of the Grunow advertisement, which appears on page 9 of this issue, we had a distinct feeling of disappointment. Frankly, we hate to see Grunow use that kind of copy and we sincerely dislike the idea of its appearance in the NEWS.

On checking up we found that the Grunow advertising account has recently changed hands. This advertisement is the first one from the new agency—Ruthrauff & Ryan of Chicago.

This advertising agency is an old and highly successful concern. They should know good advertising and selling methods and there is no reason why we should attempt to advise them on how to run their business. Presumably they know what they are doing.

In fact our representative has just reported that he called on the Ruthrauff & Ryan agency only a few days ago and received advance information regarding this particular advertisement. He was informed by the account executive that a careful study had been made of "safety advertising" and that a recent survey shows that a considerable number of national advertisers are using that appeal at the present time. This fact was offered in support of their belief that the safety appeal is particularly potent right now.

Maybe they are right. Just the same we took the trouble to call the agency on the telephone to express our opinion of this advertisement and to give notice of our intention to criticize it in an editorial in this issue. The agency was given the privilege of cancelling the order if they so desired.

Our own feeling about the matter is that if such advertising appeared only in publications read by members of the industry, plausible arguments might be advanced in defense of it. (The agency informs us that this advertising is intended only for the trade.)

However, if the same type of copy is used in consumer media it seems to us that the over-all effect can only be damaging to the whole industry, including Grunow.

From our viewpoint the trouble with an advertising and sales campaign based upon fear is that it frequently acts like a two-edged sword. If the advertisements and

the salesmen do a thoroughly good job of making the people fearful, the net effect is to reduce sales.

While some portion of the public may become impressed with the arguments presented and follow the instructions given, a much larger number are quite likely to get only a hazy impression that something is wrong with all electric refrigerators. It never becomes clear to them just how the supposed danger may be avoided. Thus the effect upon them is entirely negative.

According to reports last year, Grunow's experience with the fear appeal had not demonstrated that it was noticeably effective in making sales. Its principal usefulness seems to be as an exciter for competitively minded dealers and salesmen. It provides a "cause" around which may be developed a sort of emotional or religious fervor which sales managers value highly.

If the other manufacturers find it necessary to take up the cry, for competitive reasons, they will have no difficulty in proving that their units are also safe. The truth of the matter is that all available records show that the safety hazard of self-contained electric refrigerators is practically zero.

Whenever refrigerant leakage does cause trouble, as indicated by occasional newspaper reports, it almost invariably happens in connection with the old style multiple systems which were installed in a great many apartment houses several years ago. In those days unprotected copper tubing was strung all over a building in such a manner as to be exposed to injury in many places.

Therefore, a campaign designed to create fear of modern self-contained units, based upon newspaper clippings reporting accidents to old multiple systems, is certainly open to criticism from the standpoint of truth and fairness.

One argument which Grunow may offer in support of his attack upon competitive makes is that the salesmen of certain other companies have also carried on a destructive campaign by going out of their way to circulate reports that the Grunow company was in financial difficulties and that the Grunow refrigerator was destined to become an "orphan" make.

So it appears that the whole thing is a sort of dog fight which is not going to do anybody any good except, perhaps, the recently rejuvenated ice industry. The ice men will probably get a good laugh and will undoubtedly use the advertising to their own advantage.

Letters

Understands Why No Solicitors Are Needed

The Toledo Edison Co.
Edison Bldg., Toledo, Ohio
May 20, 1936

Enclosed check for \$3.00 is for one year's subscription to the ELECTRIC REFRIGERATION NEWS.

I have perused one copy of your paper, that of March 18, and understand why you find it unnecessary to employ subscription solicitors.

CHARLES A. HARRISON,
Asst. General Manager.

News Appreciated in New Zealand

James S. McAlpine Ltd.
Emily Place
Auckland, C. 1., New Zealand
April 29, 1936

We would like, at this stage, to state how pleased we are to receive ELECTRIC REFRIGERATION NEWS and can assure you that we feel sure it is a valuable asset to the industry.

As you know, we had the pleasure of meeting Mr. Taubeneck, when he called at Auckland on his trip around the world, and we forwarded back to you many photographs and films which he took in this city.

Colorful Reception Given Editor at Bombay, India

Mr. & Mrs. Ahmed A. Fazlhbhai
request the pleasure of the company of

at a reception to meet

Mr. George F. Taubeneck
(Representative of the American Refrigeration
& Air-conditioning Industry & Editor of the Electric
Refrigeration News)

at the Radio Club

on Thursday, 23rd April 1936 at 5-45 p.m.

R.S.V.P.
U.S.L. Battery Service,
New Queen's Road,
Bombay.

A letter from George Taubeneck, received by air mail via London, tells about the luxurious setting in which he was entertained by Mr. Ahmed A. Fazlhbhai (Crosley distributor) on his arrival in Bombay.

The Fazlhbhai brothers and their wives and about 80 guests including refrigeration leaders, prominent business men of the city, and government officials were present.

Mention is made of "beautiful women arrayed in saris spun from silver and gold thread . . . fabulous jewels . . . elegance of manners . . ." but perhaps we had better wait until George tells the story in its proper place in his travelogue.

Codes for Contractors

Rash-Saville-Crawford
Service and Installation on All Makes
Electric Refrigerators—Household
and Commercial
1620 Logan St., Cincinnati, Ohio
May 16, 1936.

Editor:

In the ELECTRIC REFRIGERATION NEWS of April 29 you have an item on "Only licensed contractors may operate in the city of Detroit."

We are contemplating setting up a similar system here and are wondering if it is possible to obtain through you a copy of the code they are operating under. We would also appreciate it, if it is possible, for you to send us or advise us where we can obtain copies of the refrigeration and installation codes in several of the large cities, such as Detroit, Chicago, Los Angeles, etc.

We hope that you will let us have a reply on this matter by letter and are enclosing 10 cents in stamps so you may mail said copies of code to us if possible.

We are a constant reader of your paper and think that it is very valuable to any service organization. We would also appreciate it if you would place our name on your catalog mailing list.

Trusting that you will give this matter your prompt attention and thanking you in advance for your trouble.

J. W. RASH,
Vice President.

Answer: The Detroit Refrigeration Code, which was recently amended to provide for the licensing of contractors, is obsolete insofar as its installation rules are concerned.

There is no recognized "model code." The New York and Chicago codes have received a great deal of attention from industry engineers, as well as city officials. Political maneuvers have been so much in evidence at the numerous code hearings in these cities that the resultant regulations are extremely complicated.

The opportunity still remains open for some progressive city to set up a standard which others may follow.

Old Models for the Chain Store Trade?

Brown Co.
Portland, Maine
May 19, 1936.

Publisher:

Thank you for your letter of May 15.

I am enclosing herewith 25 cents for a copy of the annual household specifications issue of ELECTRIC REFRIGERATION NEWS, April 22.

In answer to the second paragraph

of your letter, I was referring to Montgomery-Ward. Their salesman made the statement to me that the box he was showing me was made, or at least the unit was made, by Frigidaire. He also said that they had models made by Kelvinator.

A Frigidaire salesman later told me this was true but the Frigidaire unit used in Montgomery-Ward's box was their old type. When Frigidaire went over to the "Metermiser" they naturally had their old dies and tools, etc. on hand and rather than scrap them they contracted with Montgomery-Ward to utilize them in making a unit for sale in their stores.

FRANCIS C. CURRAN.

Leonard Corrects Data

Leonard Refrigerator Co.
14260 Plymouth Road, Detroit
May 22, 1936.

Editor:

I have had called to my attention today an error in Leonard's cabinet specifications as they appear in your specification issue of April 22. Your description of the Leonard cabinet states that it has a steel and wood frame. This statement is misleading. Strictly speaking, the cabinet is so constructed that the outside shell, which consists of high grade furniture steel, completely welded and sealed, encloses the insulation and eliminates all frame work.

It may be that this error originated in this office in a hurried preparation of these specification sheets. We will, however, appreciate publication of a correction in an early issue of ELECTRIC REFRIGERATION NEWS.

J. McLE SHEPHERD,
Advertising Department.

Slow Postal Service from Detroit to Mansfield

Howard A. Blair
74 Stewart Ave., Mansfield, Ohio
May 16, 1936.

Gentlemen:

We enclose our check for \$3.00 for a continuance of our subscription to ELECTRIC REFRIGERATION NEWS for another year, and at the same time are asking you to do what you can to speed up the delivery of your paper.

We note that you specify on each issue "Written to be read on arrival," and we agree that it is deserving of prompt attention. However, when the NEWS is received usually the Saturday after the publication date, and sometimes not till the following Monday, it cannot help being somewhat stale.

We realize that you are not the Post Office, but we do feel you should have some interest in the promptness

with which your subscribers receive your paper. We are taking the matter up with you for the further reason that we are informed that any complaints or requests for betterment of service must be initiated by the sender to the Post Office. We are altogether unable to understand the poor delivery service we are receiving, in view of the fact that Mansfield is only a few hours from Detroit, and served with frequent mail train service. Please give this matter your attention.

HOWARD A. BLAIR.

Answer: It is true that the mail service given to the NEWS is not as good as it should be but, at the same time, the situation is not quite so bad as it may appear.

In the first place, the NEWS is not predated. Normally, the paper does not go to press until late Tuesday night. The first completed copies are received in our office about noon on Wednesday. The papers are wrapped, labeled, and mailed Wednesday afternoon. Sometimes the department does not finish the mailing job until late at night. Even with the best of service you probably could not receive your paper in Mansfield before Friday morning. Actually, the service is slow and you do not get it until Saturday.

We have maintained the Tuesday night schedule for several years, up until the last month. The April 22 issue was simply too much of a job and had to be carried over until Wednesday night, thus papers were not off the press until Thursday. The same was true of the other specifications issues. No doubt this accounts for the Monday delivery of recent issues.

Please keep in mind that the NEWS is not "stale" even though a paper which comes off the press Wednesday morning does not reach you until Saturday. Most trade magazines are predated one week, or maybe two, and you are led to believe that you are getting the news fresh because it arrives on or before the publication date. We have as fast a production schedule of any trade paper in the country and that is shown by the fact that we regularly "scoop" many other publications on important news.

G-E Specifications

General Electric Co.
Appliance and Merchandise Dept.
Nela Park, Cleveland, Ohio
May 25, 1936.

Editor:

In the specifications of commercial refrigerating equipment appearing in your May 6 issue, we note that the capacity of our type CMF-9L, 10-hp. commercial condensing unit was given to you at an incorrect speed for 40° F. saturated refrigerant temperature, Group IV, of the proposed method of rating condensing units.

The data supplied you under the above conditions stated that the speed was 575 r.p.m., and the capacity 126,000 B.t.u./hr. The correct compressor speed for 40° F. refrigerant evaporating temperature with 75° F. water in and 95° F. water out is 625 r.p.m., and under those conditions, the capacity is 134,700 B.t.u./hr.

Will you kindly make this correction?
C. E. EHRENHARDT,
Commercial Engineering.

Russian Institute Wants Refrigeration Literature

Ucrainian Scientific Research
Institute of Refrigeration
Odessa, Komsomolskaya 18.

Editor:

The Ucrainian Scientific Research Institute of Refrigeration is entrusted by the People's Commissariat of Home Trade to make a general review and analyses of all the existing domestic refrigerators as well as of the refrigerating equipment for shops, restaurants, cafes, bars, including such units as refrigerating cabinets, refrigerated display cases, coolers for beverages, and so on.

This book will be composed by the group of specialists of our Institute under the guidance of Professor Levenson, and must represent a monumental work with great number of drawings, pictures, diagrams, tables, and so on.

We hope that you will be so kind as to send us a full set of your catalogues, price lists, instructions, and other materials so that we may illuminate as fully as possible the production of your firm to its best advantage.

From our part we pledge to indicate all the materials taken from the data of your firm.

We ask you to send all the materials as soon as possible on our address: Odessa, Komsomolskaya 18.

Director.

70 Grape St.
Buffalo, N. Y.

Editor:

My employer kindly turns over the REFRIGERATION NEWS to me after he is thru with it, but the specifications issue is too valuable to hand down. I desire to own one myself, so I am enclosing the necessary 25 cents to cover the cost of an extra issue.

WM. ROBERTSON

No City Roar Disturbs Their Concentration



Air Conditioning

Conditioner Is Used In Room for Curing Concrete Cylinders

DENVER—An air-conditioning curing room for concrete cylinders has taken the place of water vats and wet sand at the City Testing Laboratories here.

The laboratories test concrete samples for the city, state, and Moffat Water tunnel, and so must cure the samples under normal conditions preparatory to the actual testing work.

By replacing the wet sand and vats of water which were formerly used, air conditioning has eliminated the need for constant watching and provided for greater accuracy.

Walls of the 13x20 ft. curing room are insulated with cork covered with a layer of mastic. Cylinders are arranged in racks around the walls.

A spray gun near the center of the room blows a fine spray of water against the fan, which distributes the moisture throughout the room, creating a heavy artificial fog. Thermostats keep the humidity at between 90 and 100, and the temperature at never more than two degrees above or below 70.

By placing the spray gun so that the water is blown against the fan, it was found that the work of several guns is done with one.

The compressed air which blows the water spray out into the room is washed so that no impurities will clog the gun.

The fan, a series of electric strip heaters, and the cooling units of a Carrier cooling system, the compressor of which is in the basement, are all combined in one overhead fixture.

Phoenix Department Store Installing \$25,000 Job

PHOENIX, Ariz.—Kerrick department store here is installing air conditioning for its tea room, beauty shop, circulating library, women's lounge, daylight knitting shop, and shoe repair shop.

The installation, which is said to cost \$25,000, supplants a washed air system formerly in use. Proprietors declare that if the installation brings increased business more equipment may be added.

New Firm to Handle Carrier Line in Los Angeles

LOS ANGELES—Western Air and Refrigeration has been formed here to handle some of the sales and installation work on air conditioning for Carrier Engineering Corp. in this city.

The firm is under the direction of Lambert H. Polderman, who is in charge of all Carrier affairs in California.

Self-Contained System Cools Chapel & Other Funeral Home Rooms

CLEVELAND—Designed to harmonize with the architectural layout of a modern funeral chapel, an air-conditioning system is used to provide proper air temperatures and humidities for the main chapel, two slumber rooms, the family room, and the private office of the Claus Funeral Home here.

The chapel has a seating capacity for 150 persons. When the air-conditioning system is operating, the air in the chapel is changed completely in approximately seven minutes, thus providing about eight complete changes of air per hour.

The York air-conditioning unit installed in the Claus funeral home is of the self-contained type known as Model B-400, which incorporates a 5-hp. Freon condensing unit in the lower part of its cabinet, as well as the other mechanical parts of the system, namely the cooling and dehumidifying coils for summer use, the winter heating and humidifying coils, and the air circulating fan.

The only parts of the system that are outside the self-contained central unit are the control devices, the air supply ducts with their respective grilles, and the air-return ducts and grilles, which, together with the fresh air duct, comprise the component parts necessary for a complete air conditioning system.

In commenting on its efficiency of operation and general effect upon his patrons, Manager George Claus states:

"In my opinion, no funeral home today can consider itself strictly modern and thoroughly in step with the progress of the times, which does not consider seriously the advantages of an air conditioning system. The initial cost may seem rather large at first, but if comfort of patrons and a pleasant, dust-free atmosphere both summer and winter mean anything at all, the favorable reactions of our clientele to the air conditioning system since its installation have certainly proven the wisdom of the investment."

Air Conditioning Group In N. J. Elects Officers

NEWARK—Anthony Menke of this city was elected president of the newly organized Air Conditioners' Association of New Jersey, at a meeting held here recently.

Other officers named were as follows: vice presidents—R. F. Stengel of Irvington, William E. Parking of Summit, and William J. Steinbrecher of Lakewood; secretary—Robert A. Mager of South Orange; treasurer—Edward H. Kuhles of Irvington.

Elected to serve on the board of directors were: Robert Rice of East Orange, Lee Binns of Newark, Howard C. Adams of Montclair, and Walter Trubenbach of Newark.

Standard Air Conditioning, Inc. Introduces Residence Conditioner Assemblies

(Concluded from Page 1, Column 3)
equipment, in as many phases as desired.

The development, Mr. Manning says, is the result of four years of laboratory effort to advance air conditioning from the expensive "tailor made" stage to a low-priced production basis. Standard's equipment, it is claimed, in addition to being installed without building alterations, is also removable—a further advantage if the purchaser decides to change his living quarters.

Major units in the Standard line of equipment are:

An air pilot—a small device that fits into the base of any window—provides the four basic year-round phases: fresh air, filtration, circulation with drafts, and silencing.

It brings in fresh air, filters out 90% of the dust, dirt, and pollen, deadens street noises, and circulates the air to every corner of the room. The unit, it is claimed, will bring in up to 500 c.f.m. of air, or the equivalent of the air capacity of a room 15x20x10 feet every six minutes. Operating cost of the device is said to be about the same as for a 40-watt lamp. Prices for the equipment run from \$75 up.

A humidifier—distributing a steady stream of vapor into the air, eliminating dry air. This plugs into any light circuit, needs no drains or other outside connections, and is said to use no more current than a reading lamp. Price of this device is also from \$75 up.

A selective room conditioner—which can deliver all eight phases of air conditioning in a single room. Purchasers of this equipment may have as few as three phases at the start,

and add others whenever they wish. This equipment costs from \$125 up, depending on the number of phases desired.

A residence conditioner—having a flexibility similar to the room conditioner in the number of phases obtainable. It may be installed in the basement, with no alterations necessary in structure, decorations, or heating system.

Air outlets are cut at strategic points in the basement ceiling, and the grilles for these outlets are the only visible indication upstairs that the house is air conditioned.

The conditioner makes use of the home's existing heating system, and is obtainable in two models: for the average six- or seven-room house, at a cost of \$325; and for the larger house, at \$575.

Volume production on all units is under way at present, Mr. Manning said. On units such as the room conditioner, mass production methods can be used in assembling quickly complete units in various finishes, for varying degrees of air conditioning.

Standard's new line of equipment, Mr. Manning said in making the announcement, is an attempt to bring air conditioning "down to earth."

"We approach the problem from a new angle—that of selling not various pieces of equipment, but the healthful conditioning of the atmosphere in which a customer lives, at his price," he said. "Given the extent and degree of air conditioning he wants, we can assemble various combinations of units to fit his needs exactly."

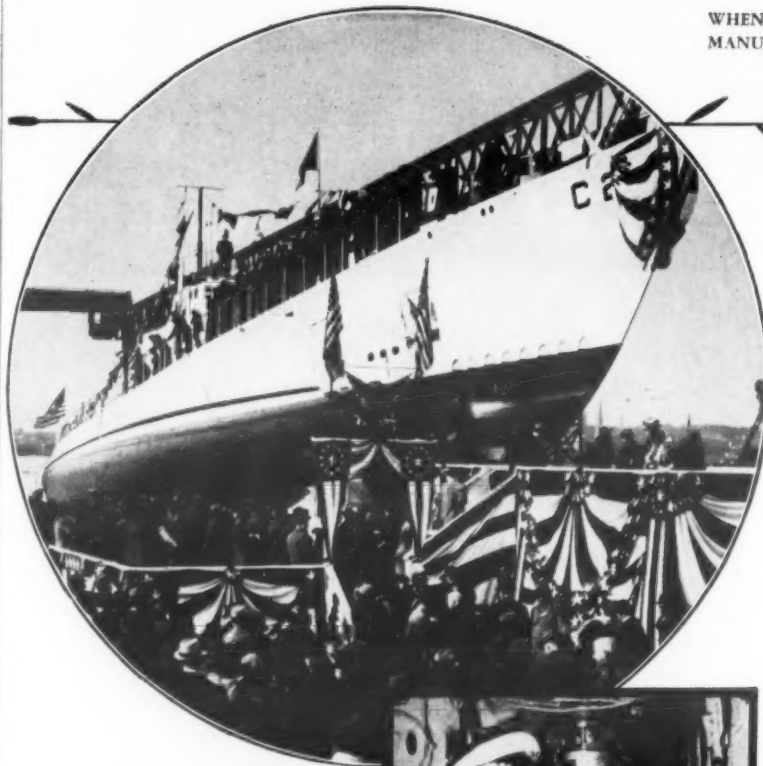
"Any family that can afford a radio set can afford at least some of the phases of air conditioning."

A Kelvinator unit air conditioner in the clinic room of the A. L. and J. C. Fawcett dental depot in Brooklyn makes it possible for a speaker to instruct dentists on the use of new equipment without interruptions caused by passing elevated trains, trucks.

Where human life requires extra protection...

"FREON" REFRIGERANTS ARE USED!

WHEN MEN LIVE, WORK, FIGHT UNDER THE SEA, IN MANUFACTURED AIR, THAT AIR MUST BE KEPT PURE!



Launching the U.S. Submarine "Cattlefish."

YOU can't afford to take chances in a submarine. The refrigerant used for air-conditioning and for food refrigeration must be safe. It must be non-poisonous, odorless, non-flammable. It must not explode or decompose if it comes in contact with the electric stoves in the galley. It must not destroy or impair the activity of the chemicals which purify the air.

That is why so many submarines use "Freon" refrigerants for cooling and refrigeration.

Human life and health deserve maximum protection under any circumstances. Over 99% of mechanically cooled railroad trains use "Freon" refrigerants to provide that protection. "Freon" refrigerants are used in homes and offices, in schools, hospitals, theatres, in mines deep under the earth, in ships, museums, funeral parlors. Over 7,000 tons of "Freon" refrigeration are contained in government buildings in Washington, and it is estimated that another 3,000 tons will be added this year. One manufacturer alone has installed over 50,000 tons of "Freon" refrigeration.

"Freon" refrigerants are harmless to foods, fruits, furs, clothes or flowers. They have been tested by the U. S. Bureau of Mines. They meet all the specifications set by the Underwriters' Laboratories of Chicago in their recent report "Standard for Commercial Refrigerating Systems" (Subject No. 207). For safety of life and goods—for efficient air-cooling—specify "Freon" refrigerants.

KINETIC
FREON
REG. U. S. PAT. OFF.
safe refrigerants



KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE

Krich-Radisco Officials Start New Building



Officials of the Krich-Radisco Distributing Co., Kelvinator and RCA distributor in the Newark territory, are shown breaking ground for their new headquarters. Both manufacturing firms were represented.

Krich-Radisco, Distributing Firm, Starts Construction on New Building

NEWARK — Ground was broken recently for the new building planned to cover an acre of ground on Elizabeth Ave. which will house the activities of Krich-Radisco, Inc., Kelvinator and R.C.A. distributor in this territory.

Long established as an electrical appliance distributor, Krich-Radisco, Inc. was the first firm in the United States to be appointed distributor for R.C.A. It took on the Kelvinator franchise in 1934.

Executive personnel of the distributorship includes: Harry Krich, chairman of the board and treasurer, Max

H. Krich, president, Paul R. Krich, vice president in charge of sales, and B. Gordon Krich, secretary.

In addition to the Krich-Radisco, Inc. department heads the following guests were present at the ground breaking ceremonies, which were followed by luncheon:

J. F. Crossin, Kelvinator district sales manager; S. C. Mitchell, director of advertising for the Kelvinator Corp.; John Griffin, R.C.A. Victor eastern district sales manager; L. W. Teegarden, R.C.A. metropolitan district manager; and W. Kelley, R.C.A. New Jersey district manager.

F-M Announces New Line of Washers

CHICAGO—Home appliance division of Fairbanks-Morse recently announced a new line of washers consisting of five electric models and two gas engine powered models.

The new "6" series, reports L. M. Decker, manager of the home laundry equipment department, has an improved hydroter with six vanes to give multi-zone washing action, preventing tangling, and giving faster washing.

Finished in shades of grey and black, the washers are streamlined with "dome" style lids, Mr. Decker says.

Arrangement of Kitchen for Straight-Line Production of Meals Described by Home Furnishing Editor

NEWBURG, N. Y.—Women's lack of inventiveness has retarded the improvement and development of kitchens as efficient step-saving work shops, Mrs. Mary Davis Gillies, home furnishing editor of *McCall's Magazine* told two audiences of women when she spoke here recently at the request of the Time Appliance Corp., Westinghouse Electric & Mfg. Co., and Burghers Furniture Store.

Although kitchen planning was widely discussed before, it had its beginning as a science, Mrs. Gillies says, in Hartford, Conn., where a convalescent, watching his wife waste steps in preparing a meal, decided to shift the equipment around to give her a straight line production system of kitchen planning.

As a result of his idea, last year this man organized a meeting of 50 key people interested in kitchens into a "Kitchen Clinic," and took the confusion out of kitchen planning terminology.

Three Kitchen Operations

At this meeting, kitchen operations were broken down into three main classifications: preparation, cooking, and cleaning up.

"Logically," Mrs. Gillies says, "food should be stored where it is prepared. The refrigerator is the center of perishable storage, a cabinet is used for dry storage, and a counter is necessary for preparation. So we put the refrigerator by a kitchen cabinet, and we achieve a refrigerator preparation center. All kitchen and motion studios prove that this combination of units saves more steps than any other arrangement that can be made."

Since the raw food all comes in at the back door, this center should be placed there so that the eggs, oranges, and vegetables can be put away immediately. In the cupboards above and below the preparation counter will be stored flour, sugar, flavorings, and other food staples as well as all utensils used in preparing foods such as mixing bowls, measuring cups, cutlery, pie pans, cake tins, and casseroles.

Storage of Staples

As a rule for storing such small equipment, Mrs. Gillies said that all cutlery, pots and pans, and staple foods should be placed at their point of first use. If they are used an equal number of times at two centers, there should be a double set, one for each point. Thus, a supply of salt, spatulas, and stirring spoons should be available at both the preparation counter and the range.

So that water for preparing foods will be handy, and the sink easily reached to deposit soiled utensils, the sink-dishwashing center should be next to the refrigerator-preparation center.

At this center, the home economist told her listeners, should be stored soap, cleaning powders, towels, paring knives, and a collection of gadgets now used in "tricking up" fruits and vegetables. If possible, she added, there should be storage cupboards close at hand for glassware and china.

Range-Dishwasher Center

The third of the centers, according to Mrs. Gillies, is the range-dishwashing center, which is between the sink and the dining room door, so that the food can be taken from the range, served, and then taken right into the dining room. The soiled pans then move in the other direction, toward the sink.

At the range center should be stored skillets, pots and pans, uncooked cereals, tea, coffee, cocoa, and serving dishes.

"U" or "L" Shapes Preferred

An ideal kitchen, Mrs. Gillies says, links these three centers together in a "U" or "L"-shaped form. In the "U" form, the refrigerator-preparation center is on the side nearest the back door. The sink-dishwasher center is at the dead of the "U" under the window, and the range-serving center is opposite the refrigerator next to the dining door.

In the "L" plan the same sequence is followed and the fourth corner of

the kitchen becomes a planning or eating center.

In order to get all this equipment in a kitchen, the speaker estimated that at least an 8x12-ft. room is needed; and where there is more than one worker in the kitchen, a room 10x14 ft., or even 14x16 ft. is desirable. In the latter kitchen, Mrs. Gillies says, it is possible to include an eating center and even a planning center with books and recipe files.

Proper Storage Space

In the too-small kitchen, she warned, storage space is apt to be sacrificed. It is a good rule, she said, to allow 6 sq. ft. of upper cabinets for each member of the family, plus 12 sq. ft. for guests. If this ratio of upper cabinets is provided, the lower units take care of themselves.

Although Mrs. Gillies admitted that in nine kitchens out of 10, doors interrupt the smooth flow of work, in any kitchen, she maintains, the housewife can get a near approach to this plan.

Although she began her speech with kitchen arrangement because more than anything else it is the arrangement that saves steps and helps the disposition and looks, Mrs. Gillies said that in reality, the first step must be the purchase of equipment.

"If you are just beginning to think about remodeling your kitchen, get the refrigerator and range and get them paid for; and in the meantime, place the old kitchen cabinet by the refrigerator, and a table for serving by the range. In this way, a housewife can progressively improve her kitchen without a too sudden raid on the pocketbook."

Select White Equipment

Select all major equipment in white, including the range, refrigerator, and possibly all of the cabinets, is Mrs. Gillies' advice. "Then," she said, "you can change your color scheme as often as you like without worrying about a green stove and an ivory refrigerator, for example."

For the walls, she suggests a choice of washable materials; washable paint and wallpaper, structural glass flex-board tile, formica, micaite, carrara glass, and linoleum.

Linoleum, she says, is also the widest used flooring. Mrs. Gillies warns against plain colors, or tile patterns with large white areas, both of which soil easily. Her advice is to select, instead, marbelized or jaspe patterns if a plain effect is desired, or tile patterns without white areas. For curtains, oiled silks, processed fabrics, Venetian blinds, or slat shades are popular with or without curtains.

Story of Color Schemes

Color schemes, the speaker said, tell an exciting story since they have begun to get gayer and gayer, and farther and farther away from the old over-worked green themes. As the most popular color scheme today she suggested red, white, and blue; as the most exclusive, white equipment, brown walls, beige floor, and turquoise blue curtains and accessories.

If, however, the kitchen is not sunny, a good solution, she said, is to have yellow walls, white cabinets, brown and ivory tile linoleum, and yellow curtains with brown spots.

Another attractive kitchen she proposed, is one with white cabinets and equipment, clear red walls and curtains, and a black marbelized floor. Still another, which is very modern, has yellow walls, a blue ceiling, and a black marbelized floor. The accessories are yellow and clear red.

Lighting for Kitchen

When remodeling, it would be worth while, she suggests, to drop the ceiling over the sink and put in a soffit light. A counter light, which can be purchased for \$5, is effective over the preparation counter.

Plenty of convenience outlets, with a double one at each of the three centers, to be used at the preparation center for the electric mixer, at the sink for the juice extractor, and at the serving center for the toaster, coffee maker, and other appliances, should also be included, she said.

3 Westinghouse Salesmen Better 1936 Quotas

MANSFIELD—Three Westinghouse refrigerator salesmen have already made their bids for the 1937 "Round-Up," according to reports received here.

John Campbell of New Haven, Conn., busted his 1936 quota during the first three months of this year, the only Quota Buster to achieve that honor.

S. J. Snellenberg, Philadelphia, and Les McCurry of Reno have since broken the 1936 quota.

• MODERN BEAUTY

• RELIABILITY

• CONVENIENCES

• DELUXE APPOINTMENTS



Everything YOU COULD ASK FOR IN AN ELECTRIC REFRIGERATOR

Plus

PARKER RUST-PREVENTION

In addition to high efficiency in food preservation and economical operation, the new Hotpoint refrigerator includes many "plus" features.

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Sales Figures

Half of Trenton Families with Incomes over \$3,000 a Year Own a Refrigerator; Most Users in \$2,000-\$3,000 Class

While almost 50% of the families in Trenton, N. J., with income of \$3,000 or more own a mechanical refrigerator, the greatest number of these units in the city is owned by the families with income between \$2,000 and \$3,000.

The report covers 3,707 families, 13.7% of the city's 27,130 families as shown by the census of 1930.

Refrigeration saturation in the city is relatively low, only 9.3% of the families covered in the survey reporting the use of this type of equipment.

Negro Ownership Negligible

White families own practically all the mechanical refrigerators used in the city. Although 14.2% of Trenton's Negro population were covered in the study, refrigeration ownership among this class was so low as to be almost negligible, only 1.2% of the total units in the city being in use among them.

About two-thirds of the users of mechanical refrigerators in the city are householders living in their own homes; 66.9% to be exact.

Difference between the tenancy groups, however, is best shown by the fact that the use of this equipment was reported by only 7% of the tenants, as compared with about 12% of the home owners.

Almost one-fifth (19.2%) of the total number of mechanical refrigerators

used in Trenton are in the homes of families with income of less than \$1,000. Only about 3% of these low-income families, however, have this type of refrigeration equipment, as compared with 13% of all families within the three income classes of \$1,000 and \$3,000.

Approximately 41% of the next highest income class (\$3,000 to \$5,000) use mechanical refrigerators, and 72% of the families with income of from \$5,000 to \$7,000 have equipment of this kind.

Saturation point in refrigeration naturally moves upward with the rise in family income. As a consequence, this latter group ranks first in the percentage of families equipped with mechanical refrigeration, when compared with all other groups.

But, because of the relatively small number of families in the group, it by no means takes the lead, among all the city's income groups, in the reported consumption of electric refrigerators. That distinction, on the basis of actual number of mechanical refrigerators in use the city, is held by the group of families reporting incomes between \$2,000 and \$3,000.

Ranking by Classes

A study of the relative number of refrigerators in use in Trenton homes

gives an indication of the relative importance of each income group in the total ownership and use of mechanical refrigerators in the city.

This study, in addition to showing that the \$2,000 to \$3,000 income class ranks first in the use of mechanical refrigeration, with 22.1% of the city's units, shows also that the \$1,000 to \$1,500 class is second, with 18.3%; the \$1,500 to \$2,000 class third, with 17.2%, and the \$3,000 to \$5,000 class fourth, with 14.5%.

Other income classes rank as follows: \$500 to \$1,000 class, 13.4%; \$5,000 to \$7,000 class, 6.7%; \$1 to \$500 class, 3.2%; "No income" class, 2.6%; and \$7,000 and over class, 2%.

It is, therefore, apparent that while the highest income class, \$7,000 and over, shows a very high saturation as far as use of mechanical refrigerators is concerned, 70%, its small size makes it relatively unimportant in the over-all buying picture.

Saturation percentages for the various income groups show that, in general, the use of mechanical refrigeration of one sort or another tends to increase with the family income. With the exception of the "no income" group (which contains families at either end of the income scale), the use of refrigeration increases as the family purse grows fatter.

Income and Use Figures

Income and use figures for Trenton, broken down into saturation percentages are:

"No income" class: 3%, or nine users out of 297 families studied; \$1 to \$500 class: 1.5%, or 11 users out of 729 families; \$500 to \$1,000 class: 4.5%, or 46 families out of 1,021; \$1,000 to \$1,500 class: 8.2%, or 63 families out of 765; \$1,500 to \$2,000 class: 14.8%, or 59 families out of 398; \$2,000 to \$3,000 class: 22.8%, or 76 families out of 334; \$3,000 to \$5,000 class: 41.3%, or 50 families out of 121; \$5,000 to \$7,000 class: 71.9%, or 23 out of 32 families; \$7,000 and over class: 70%, or 7 families out of 10.

Interesting comparison may be made between refrigeration saturation and the use of electricity for lighting in the city.

A study of the figures compiled for Trenton shows that while the \$2,000 to \$3,000 class uses 22.1% of the city's refrigerators, it contains but 9.4% of the wired homes. On the other hand, the \$500 to \$1,000 class, using but 13.4% of the city's refrigerators, has 27.6% of the wired homes. In like manner, the \$1,000 to \$1,500 class, with 18.3% of the refrigerators, has 21.5% of the wired homes.

Electricity is used for lighting in about 95% of Trenton homes; less than 1% use gas. There is an unmistakable relationship between low incomes and the non-use of electricity—which may give the wide-awake appliance merchandiser an idea of where to look for his best prospects.

At last, as the figures show, use of electricity for lighting is not a major factor in determining refrigerator ownership; family income is, quite definitely, a major factor.

Families with incomes of less than \$1,000 constitute 94% of all those who do not use electricity; while practically all families with incomes above \$1,000 are users of this service. Although, as previously stated, the \$500 to \$1,000 class has the largest number of users of electricity, this income group reported a saturation of 95.4% in this classification, 4.6% of its homes being without electric current.

Figures on distribution of refrigerators, compared with use of electric current for lighting, may indicate wherein lie the appliance merchandiser's best potential fields. These figures, it must be remembered, show only what percentage of the total number of refrigerators in the city are used in the various classes, and what percentage of wired homes in the city is in each income group. They are not to be confused with relative saturation points on refrigerators and electric current, which will be given in a later table.

Percentage distribution figures are:

	Refrigerators	Electricity
All Classes	100.0	100.0
No income	2.6	7.1
\$1-\$500	3.2	18.6
\$500-\$1,000	13.4	27.6
\$1,000-\$1,500	18.3	21.5
\$1,500-\$2,000	17.2	11.2
\$2,000-\$3,000	22.1	9.4
\$3,000-\$5,000	14.5	3.4
\$5,000-\$7,000	6.7	0.9
\$7,000—and over	2.0	0.3

Saturation percentages of the various income groups on refrigerators and use of electricity for lighting are:

	Refrigerators	Electricity
No Income	3.0	84.5
\$1-\$500	1.5	90.2
\$500-\$1,000	4.5	95.4
\$1,000-\$1,500	8.2	99.0
\$1,500-\$2,000	14.8	99.7
\$2,000-\$3,000	22.8	99.4
\$3,000-\$5,000	41.3	100.0
\$5,000-\$7,000	71.9	100.0
\$7,000 and Over	70.0	100.0
All classes	9.3	95.3

17 Canadian Factories Make 92,537 Washers

OTTAWA, Ont.—Seventeen factories in Canada manufactured or assembled 91,537 domestic washing machines during 1935, according to reports submitted to the Dominion Bureau of Statistics.

The 1935 output included 78,762 electrically operated washers, 2,747 gasoline-driven, and 10,028 hand machines. Last year's total compares favorably with a production of 84,079 washers in 1934, 58,931 in 1933, 58,486 in 1932.

Factory washer sales during 1935 were reported at 90,307 units, valued at \$4,218,456 factory prices, including 78,052 electric machines at \$3,881,117; 2,567 gasoline-driven machine at \$206,206, and 9,688 hand-operated machines at \$131,133.

Inventories at the end of 1935 were reported as follows: electric, 5,400 units; gasoline-driven, 116; water power and hand machines, 517.

Both imports and exports of washers showed increases during the past year, the Bureau reported. Imports increased during 1935 to 3,380 units, valued at \$243,049, from 3,014 units at \$218,299 in the previous year.

Use of Electric Cooking Increases in France

PARIS—Inquiries into the progress of electric cooking in France and North Africa during the past year, made by the French Societe pour le Developpement des Applications de l'Electricite, published recently, show that at the end of September, 1935, 117,882 electric cookers and other domestic cooking appliances were in use, as compared with 81,451 at the corresponding date in 1934, an increase of 36,431 units, or 44%.

No fewer than 243 buildings, comprising 5,895 "flats," are entirely equipped with electric cooking apparatus.

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PITTSBURGH—Titled "Crosley Folies," a weekly radio program designed to boost sales of refrigerator dealers operating under the Anchor Lite Appliance Co., Crosley distributor for western Pennsylvania, is broadcast each Monday night over station WCAE here.

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Exports of Electric Refrigerators

February, 1936. Shipments Reported by the Bureau of Foreign and Domestic Commerce, Washington, D. C.

	Electric Household Refrigerators		Electric Commercial Refrigerators Up to 1 Ton		Parts for Electric Refrigerators
	Number	Value	Number	Value	Value
Austria	28	2,277	9	1,019	2,614
Azores & Mad. Is.	1	61	...	...	...
Belgium	595	47,063	127	9,339	10,498
Czechoslovakia	146	9,437	...	...	1,924
Denmark	...	...	...	...	428
Finland	...	...	1	119	1,800
France	29	1,785	125	9,270	32,593
Germany	10	917	...	...	110
Gibraltar	...	...	2	309	132
Greece	1	84	30	2,815	1,173
Irish Free State	349	28,590	121	7,296	1,711
Italy	22	1,558	...	...	385
Malta, Gozo, and Cyprus	...	...	...	...	15
Netherlands	111	8,401	100	9,835	9,724
Norway	36	2,563	18	1,730	1,657
Poland and Danzig	...	...	2	170	...
Portugal	7	555	...	...	10
Rumania	...	...	...	...	2,300
U.S.S.R. (Russia)	4	750	...	...	...
Spain	202	17,532	153	11,715	12,438
Sweden	116	8,600	3	805	12,081
Switzerland	146	9,437	...	...	12,698
United Kingdom	2,771	188,622	555	37,302	110,933
Yugoslavia	1	90	...	...	...
Canada	920	36,504	148	12,506	70,732
British Honduras	1	130	...	...	105
Costa Rica	2	212	...	...	...
Guatemala	25	2,324	1	815	99
Honduras	...	...	...	...	...
Nicaragua	8	634	...	...	58
Panama	27	3,141	5	872	592
Salvador	3	289	...	...	...
Mexico	328	30,435	1	500	1,844
Newfoundland and Labrador	3	247	...	...	1
Bermuda	6	75	...	...	283
Barbados	6	482	...	...	39
Jamaica	19	1,820	...	...	88
Trinidad and Tobago	5	526	...	...	51
Other British West Indies	11	992	3	644	427
Cuba	134	11,880	64	11,269	2,470
Dominican Republic	4	350	...	...	125
Netherlands West Indies	53	4,009	3	601	303
French West Indies	13	953	...	...	63
Haiti, Republic of	17	1,281	...	...	35
Argentina	70	6,707	...	...	9,877
Bolivia	17	1,663	...	...	...
Brazil	1,082	84,339	126	13,788	7,889
Chile	7	702	...	...	45
Colombia	142	13,465	10	1,345	618
Ecuador	8	1,315	...	...	178
British Guiana	17	1,200	...	...	3
Surinam	...	...	...	...	7
Paraguay	13	1,139	...	...	...
Peru	221	19,258	10	1,285	1,329
Uruguay	14	1,495	14	1,001	2,501
Venezuela	47	5,335	7	797	2,440
Aden	...	...	1	72	309
Saudi Arabia	2	152	...	...	...
British India	7,469	11	2,097	3,106	...
British Malaya	166	15,167	27	11,355	1,427
Ceylon	15	1,437	1	171	1,280
China	16	2,011	...	...	1,203
Netherlands India	265	22,169	8	751	2,302
French Indo-China	1	113	...	...	406
Hong Kong	76	8,412	...	...	162
Iraq	10	1,068	...	...	51
Japan	10	1,249	11	1,524	7,935
Kwantung	30	2,185	...	...	...
Palestine	229	17,898	6	1,833	3,713
Philippine Islands	61	6,087	7	952	3,526
Slam	36	3,462	...	...	219
Syria	8	651	1	119	...
Turkey	268	21,520	50	6,668	940
Other Asia	...	...	...	...	...
Australia	23	1,872	...	...	4,733
French Oceania	4	299	1	138	77
New Zealand	1	68	2	301	1,072
Belgian Congo	13	1,439	...	...	299
British East Africa	28	2,416	...	...	566
Union of South Africa	450	37,902	27	3,379	14,307
Other British South Africa	47	3,525	...	...	323
Gold Coast	18	1,466	...	...	126
Nigeria	2	245	...	...	213
Other British West Africa	55	4,547	10	1,660	883
Egypt	46	3,689	11	2,351	184
Algeria	223	17,613	31	3,558	3,230
Tunisia	3	226	...	...	225
Madagascar	...	...	...	...	417
Other French Africa	...	...	...	...	...
Italian Africa	...	...	2	660	1,471
Morocco	171	12,848	...	...	1,359
Mozambique	6	443	1	226	...
Other Spanish Africa	...	...	...	...	4
Total	9,993	\$751,797	1,948	\$175,237	\$372,690
Shipments to Hawaii	294	32,236	14	2,691	8,977
Puerto Rico	139	12,006	14	2,579	1,359

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The Refrigeration Engineer's Manual

By S. L. Potts

Indirect Expansion Systems Used To Eliminate Dangers from Leakage of Ammonia

Chapter 10—Indirect Expansion

The indirect expansion of the ammonia in some intermediate vessel, usually a brine tank or brine cooler, is used in many places to overcome the trouble that might be caused by a leakage of the ammonia gas into the refrigerated space. The evaporation of ammonia takes place in the brine tank or cooler producing low temperature brine.

The low temperature brine is circulated through the refrigerator cooling coils producing the cooling effect desired. If a leak of brine should happen, there would be no serious damage to any food products contained in the refrigerator.

Brine is a term used to distinguish a mixture of some chemical salt and water which has a low freezing temperature. Other mixtures, such as alcohol and water, are frequently used and the same name is given to all the mixtures when used for this work. The term brine in this chapter will mean any mixture that carries a large percentage of a chemical salt in solution, and has a low freezing temperature.

Salts Used for Brines

The chemical salts and mixtures most frequently used are:

1. Sodium chloride
2. Calcium chloride
3. Alcohol (not a salt).

Sodium chloride (NaCl). Common salt. The salt is dissolved in the water making salt water. The minimum amount of salt that can be dissolved in cold water is about 23 per cent of the weight of the brine. With this amount of salt in water, the freezing point of the brine when standing still is 6° below zero. If more salt is added the freezing temperature rises very rapidly. The salt will also crystallize out of the solution and form a deposit in many places.

The salt brine should never exceed 23 per cent and should not be relied on for temperatures below 0° F. Salt brine corrodes pipes very rapidly,

causing leaks. Zero temperatures cause crystallization of salt, the deposit soon coats over or blocks the pipes, requiring cleaning, repairs, replacement or reduction in efficiency and require more brine to be circulated to do the required work.

Calcium chloride (CaCl₂). Calcium chloride usually comes in the crystal form and must be dissolved before being placed in the tank. Calcium chloride is a chemical salt in the same sense as sodium chloride. The best way to dissolve calcium chloride is to cause the water to pass over the crystals until they disappear into solution. Place the crystals in a fine wire screen, a box, or a strong coarse sack and cause water to run over the salts until dissolved.

Lower Temperature Possible

Calcium chloride solutions (brine) permit of much lower temperatures than sodium chloride. As low as 50 to 55° below zero are possible without serious trouble. Calcium chloride brine does not have any rapid action on metals in pipes, ice pans, etc., and is more desirable for this service.

It does not crystallize out of solution or form deposits on pipes. It costs considerably more to purchase but the cost is partly offset by the fact that much less weight will give the required results.

Alcohol and water. This is frequently used in domestic tanks but is not a salt solution. It does have low freezing temperature and might have some desirable features for domestic use. Alcohol is used in closed tanks to avoid the escape of alcohol odor and to prevent the evaporation that would take place in warm weather. Alcohol is not used in commercial plants due to the high cost and the waste and smell due to evaporation.

Diagram of System

In Fig. 81 is shown a refrigeration system using the indirect expansion or brine circulation in the refrigerated space. The equipment used to cool and circulate the brine may be changed considerably in order to produce some particular condition.

In Fig. 82 is shown the arrangement of the evaporating coils in the brine tank which contains the ice cans in which the water is frozen. The ammonia is evaporated in the coils A which are entirely submerged in the brine. The ice cans are lowered into the brine between the coils A. The heat in the water inside the ice cans is conducted through the can walls to the brine and from there to the ammonia inside the coils A. The brine is the intermediate agent that conveys the heat from freezing water the ammonia liquid inside the evaporator coils. This is a system frequently used in ice making plants. The partition in the tank extends to within a short distance of each end of the tank. The brine is caused to flow down one side of tank and return on the other side so that the heat from the ice cans is conducted rapidly to the ammonia liquid inside the coils. Thus ice is produced in the shortest time possible.

Classes of Systems

Brine cooling systems used to cool the refrigerated spaces may be divided into two classes—

- The closed cooler
- The open cooler

The coil cooler usually consists of a system of pipes connected by return bends hung on ceiling or sidewalls of a room in which the materials are stored that are required to be cooled.

The coil cooler is very much like the coil evaporator shown in Fig. 56 with the difference that the cooler carries cold brine and the evaporator carries ammonia.

The temperature in the refrigerated space is regulated by a valve usually placed on the outlet pipe of the cooler coil so that the pressure is always on the coil to prevent air entering the coil or air pockets to form. To be able to remove air that might enter the cooler coil, give it a slight pitch up to the outlet and in the direction the brine flows.

Open cooler is where the cold brine is brought into direct contact with air that is circulated into the refrigerated space. This may be done by causing the brine to flow over curtains built of canvas, fine wire screen, sheet metal or boards. The brine may be pumped under pressure through spray nozzles and the air caused to pass through the spray. All of these methods require a brine loft or air tight and heat insulated room where this process takes place.

With the open system, all troubles of heat insulation due to heavy frost formation on pipes is overcome. The cold brine is brought into intimate contact with the circulating air and rapid heat transfer takes place. The air circulation through the loft or refrigerated space may be natural or forced. If natural the design must be made to suit. The forced circulation requires a fan or blower, but places the control of temperature directly under the operator.

If salt brine is used, some may be deposited on the screens, floors, etc., which will weaken the brine solution. If the materials stored in the refrigerated space are sensitive to salt, (Concluded on Page 15, Column 1)

Indirect Expansion System

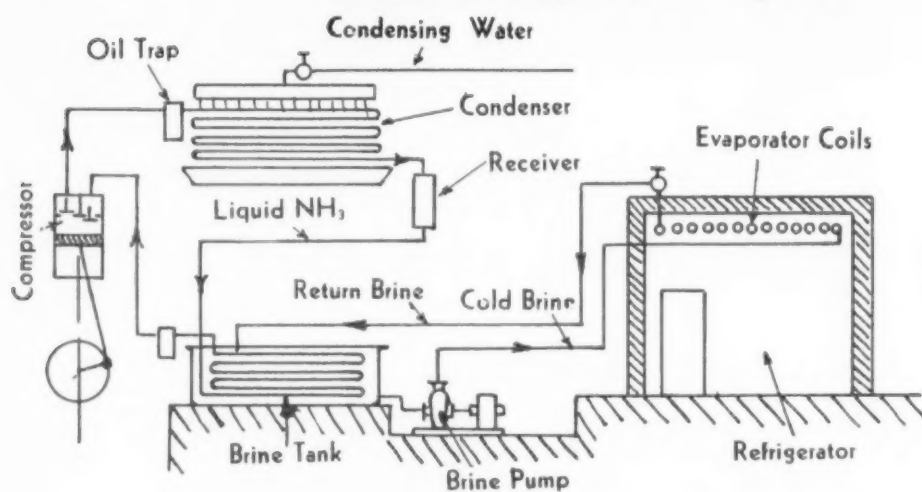


Fig. 81—The drawing at the left shows the component parts of a refrigeration system using the indirect expansion method.

Placement of Evaporator Coils

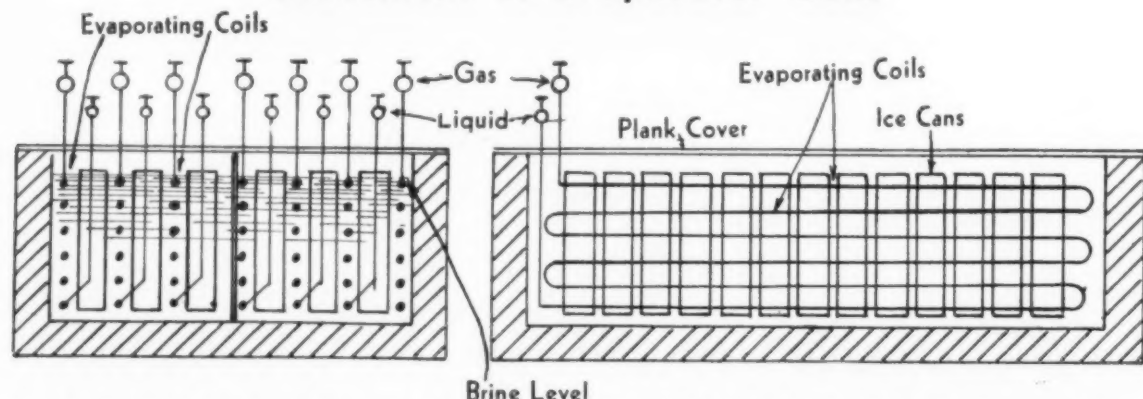


Fig. 82—The sketch at the left shows the location of evaporator coils in an ice tank as seen from the end while the one at the right is a side view of the same tank.

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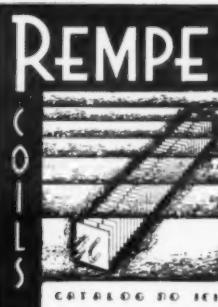
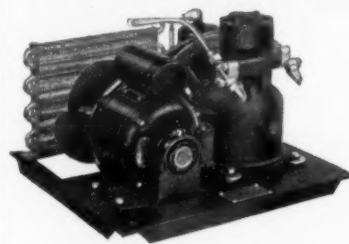
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Brine Coolers Made In Four Classes

(Concluded from Page 14, Column 3)
erated space give up large amounts of moisture, the brine will be diluted in time and must be strengthened. The operator must test the brine frequently.

Brine Cooler Classifications

Brine coolers are used to remove the heat the brine has collected from the refrigerated space and to give up this heat to the evaporating ammonia. Brine coolers are classified as:

1. Brine tank coolers
2. Brine coil coolers
3. Double pipe brine coolers
4. Shell and tube brine coolers.

Single pass and multiple pass.
Brine tank cooler is a large open top tank made out of wood or metal. The tank is filled with brine and an evaporating coil is submerged in the brine. The warm brine is returned to the top at one end of the tank and the cold brine drawn off the opposite end at the bottom and connected to the suction side of the circulating pump. The discharge side of the pump is connected to the cooling coils and back again to the tank. An insulating cover is placed over top of tank to keep out heat and dirt. Fig. 81 shows a brine tank cooler.

Brine Coil Cooler

Brine coil cooler is composed of a shell and closed at ends by steel or iron heads. Inside the shell is one or more coils of pipe. The brine is pumped through the pipe coils. Ammonia is expanded in the shell where it produces the cooling of the brine. The shell stands on end. Fig. 83 shows a vertical shell and coil cooler.

Double pipe brine coolers are made exactly like a double pipe condenser shown in Fig. 48. The size of pipe used most is 2 in. and 3 in. This gives a larger area between the pipes for the evaporation of ammonia and the escape of NH_3 gas. The brine passes through the 2 in. pipe. The counter-flow principle is used which gives the best conditions for heat transfer and the highest efficiency.

Brine Freezing Point

Great care must be taken that the brine freezing point is well below the temperature of the ammonia in the double pipe cooler in case of a shut down of the brine circulating pump. The ammonia and brine are brought very close together and when circulation stops, freezing soon takes place unless the brine freezing point is below the temperature of ammonia.

Double pipe brine coolers are frequently

installed in a cold storage room in order to take advantage of all the cooling surface of the coil. If the double pipe cooler is installed in a warm room it should be covered with insulation.

Use in a Tank Cooler

Double pipe brine coolers in a brine tank cooler. This combination is used frequently to take advantage of all the outside cooling surface on the double pipe brine cooler. Any cooling from outside surface of pipe is covered by the brine in the tank. Also the submerged double pipe coolers are prevented from gathering any frost. Great care must be taken to check frequently for leaks. The pressure inside the ammonia evaporating space will often be below the pressure maintained on the brine circulating system, so the brine will pass through any leak into the ammonia. When leaks of brine do occur, the brine will lodge in the scale trap and oil separator. When a milky liquid appears in the drains from these places, it is an indication of brine in the liquid ammonia lines and a search for the leak should be made at once.

Shell and tube brine coolers. Single pass. This type looks very much like a horizontal return tubular boiler except there is no brick setting or fire grates. It consists of a shell and heads, both made out of flange steel. Tubes are beaded into or welded into the heads and extend from head to head. This type of brine cooler is used in ice making plants. The ammonia is expanded and evaporated inside the shell and the brine is pumped through the tubes. This type cooler can be operated fully flooded, giving a rapid rate of heat flow. The resistance of the brine through the tubes is small. This type of brine cooler is placed at one or both ends of the ice freezing tank, and the brine pumped through the tubes in course of the circulation through the freezing tank and around the ice cans.

Multiple Pass Type Shell and tube brine coolers. Multiple pass.

Horizontal Type

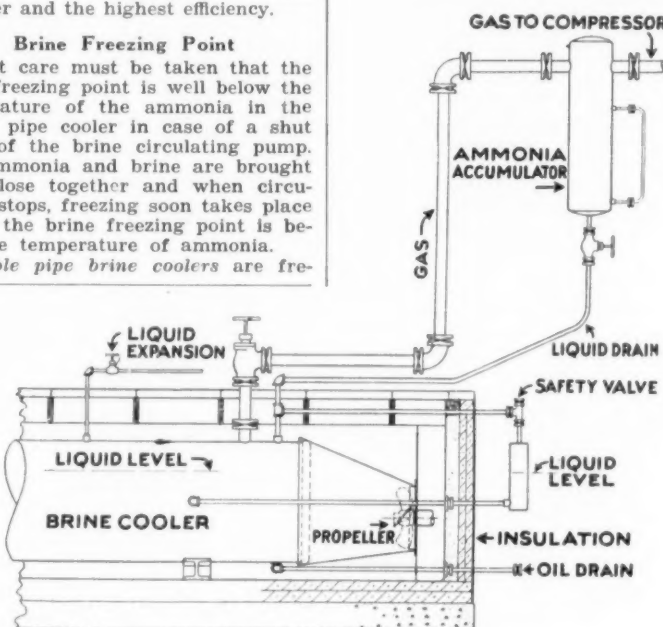


Fig. 84—Horizontal single-pass shell and tube brine cooler.

multiple pass, are very much like the single pass. This type has a shell, the two tube sheets are usually welded to the shell. Tubes extend from one tube sheet to the other and are secured by rolling and beading, rolling and flaring, or welding. The tube sheets are covered by heavy cast heads bolted to tube sheets and constructed with partitions in head to direct the flow of brine through the tubes a number of times from one end to the other. The ammonia is evaporated in the shell and the brine passes through the tubes sometimes as many as 8 or 10 times. This type is operated flooded and gives a very high rate of heat transfer. Great care must be taken to keep the brine freezing point well below the temperature of the

ammonia and to constantly check for leaks between the brine and ammonia.

The shell and tube type coolers are usually provided with a drain from the lowest point so that a sample of the ammonia may be drawn off to check for brine in the ammonia.

Type of Brine Cooler Used

The type brine cooler used in indirect expansion refrigerating plants where the brine has to be circulated through many boxes such as in hotels and apartment houses, is always the coil, the double pipe, or the shell and tube type—multiple pass. This permits the brine cooler and pump to be located in the basement or power house under the direct supervision of the engineer. A balancing tank is placed at a height somewhat above the highest refrigerator box to be cooled. The suction of the brine circulating pump is connected to the balancing tank. This produces a head on the pump. The circulating pump discharge is connected to the brine cooler and then through the refrigerator boxes and up to the balancing tank. The only head on the pump due to liquid pressure is the distance from

Vertical Cooler

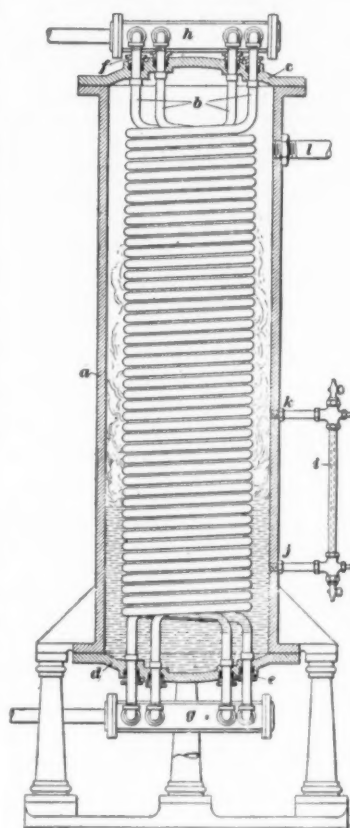


Fig. 83—Cross-section of vertical shell and multi-coil brine cooler.

brine level in balance tank to the highest point in discharge line. The circulating pump moves the brine against a very small static pressure plus the friction and velocity losses of brine in the pipes. The cost of power is small under these conditions. This is known as the three pipe system.

Operation of Brine Cooler

Brine cooler operation. All pipes and other surfaces used to transfer heat in any way should be kept free from frost and ice. Frost is a good insulator and should be removed frequently by melting off or scraping off. If the brine is too weak, ice will form on the brine cooling surface and cause loss. Add more salt or calcium chloride to prevent this. Scale and sludge on pipes cause loss. Remove both with hose or scraper. Oil should not be allowed to gather on any surface because it is heat insulating, causing losses where heat is to be transferred.

Brine velocity in all type coolers except tanks varies from 90 to 120 feet per minute. As the velocity increases the power required to circulate the brine increases and the increased heat absorbed may be offset by increased cost.

Advantages of System

Advantages of indirect expansion system of cooling.

1. Where long lines of pipe are required to connect a number of refrigerating units the amount of ammonia required to fill these would be prohibitive in matter of cost.
2. The long lines for ammonia would increase the hazard of leaks and the high cost of maintenance. The brine lines are much easier to operate and maintain.
3. Leaks of brine cause no danger to life or waste of food products or other commodities in storage.

Disadvantages of Method

Disadvantages of indirect system.

1. Cost of a circulating pump and power to operate it.
2. Cost of brine.
3. Increases cost of power to operate compressor at lower suction temperatures required for two transfers of heat.

Hookup for Multiple System

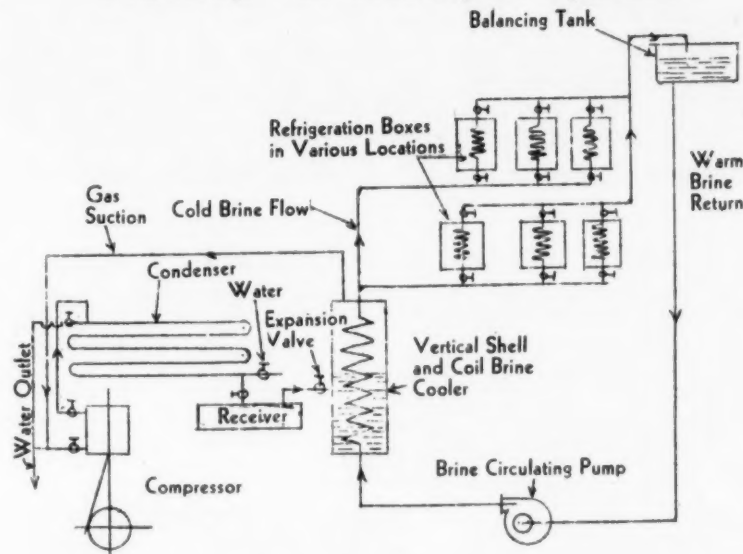


Fig. 85—Brine circulating system for multiple cooling units with balanced brine circulation.

Channon Offers Parts Finance Plan to Customers

CHICAGO—H. Channon Co., refrigeration parts supply firm here, will add two new outside salesmen June 1 to cover the states of Wisconsin, Iowa, Illinois, Indiana, and Michigan, company officials have announced.

Henry S. Dekker, formerly connected with Harry Alter and H. W. Blythe Co., is manager of the refrigeration parts division. Ralph E. Kramer is assistant sales manager, and Warrent Strots is floor salesman.

One of the nine display windows of the company's headquarters at Randolph and Wacker Drive is being devoted to the display of refrigeration parts. Other windows display the supplies which the company handles for a varied group of industries.

The H. Channon company has also made available a non-recourse finance plan for independent service men to cover the cost of parts for installation.

Under the plan the independent service man's customer fills out a credit application on a form provided by the Channon firm. The application is studied and the permit granted within three days.

The contract is required to cover the total price of the installation including labor charges, and a down payment of 20% is required.

If the application is granted the independent service man gets the 20% down payment and signs a conditional sales contract with the customer covering the unpaid balance plus the finance charge. He then assigns the contract to the Channon company.

The supplier, after deducting the amount owed for material purchased pays the service man the remainder except 7½% of the original unpaid balance. This is withheld as a guarantee of service on the installation during the contract period. At the end of three-fourths of the contract period the service man gets the 7½% originally withheld.

Quintuplets' Mother Given Crosley Battery Radio

CALLANDAR, Ont. — Mrs. Oliva Dionne, mother of the quintuplets, received her first radio, a new Crosley console battery radio receiver, as a Mother's Day gift from Charles R. Rogers of Universal Picture Corp.

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The Buyer's Guide

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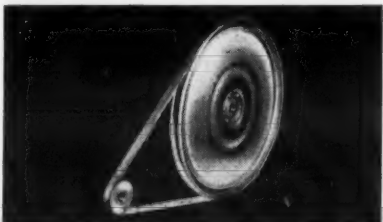
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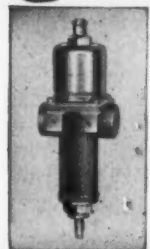


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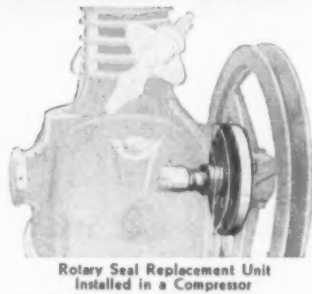
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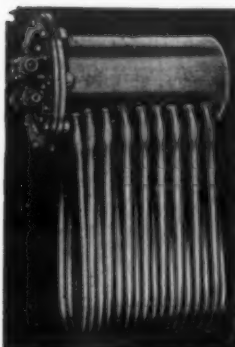
BOUND VOLUMES OF THE NEWS

Each of the following volumes contains all weekly issues of Electric Refrigeration News issued during a period of four months. Stiff paper board covers.

Vol. 2—Jan. 4 to April 26, 1933. (Serial Nos. 193 to 214.)	Vol. 9—May 3 to Aug. 30, 1933. (Serial Nos. 215 to 232.)
Vol. 3—Jan. 4 to April 26, 1933. (Serial Nos. 233 to 249.)	Vol. 10—Sept. 6 to Dec. 27, 1933. (Serial Nos. 250 to 266.)
Vol. 4—Jan. 3 to April 25, 1934. (Serial Nos. 267 to 284.)	Vol. 11—Jan. 3 to April 25, 1934. (Serial Nos. 285 to 301.)
Vol. 5—May 1 to Aug. 28, 1934. (Serial Nos. 302 to 318.)	Vol. 12—May 2 to Aug. 29, 1934. (Serial Nos. 319 to 336.)
Vol. 6—Jan. 1 to April 29, 1935. (Serial Nos. 337 to 353.)	Vol. 13—Sept. 4 to Dec. 25, 1935. (Serial No. 354 to 371.)
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ATLANTA Georgia Sales Circus

Last year the Georgia Power Co. found their "Circus of Values" program a fine sales builder during the early summer sales season. This year, the company is going it one better, says H. C. Coffey, advertising manager, with a Colossal Circus of Sensational Values," heralded by an impressive advertising program in 15 dailies, some 70-odd weeklies, elaborate direct mail pieces going to 50,000 prospects, and outdoor posters in 24 Georgia cities and towns.

All of the company's 86 stores have also been decorated in true circus style, according to Statistician Jim Stafford, who expects this year's "circus" to set a new high in company sales.

The year thus far has been a winner as far as appliance sales at Georgia Power are concerned. First quarter total sales were \$461,185.05, states Mr. Stafford, an increase of \$55,798.80 over same period last year and 155.3% above quota. During the company's spring refrigeration drive (March 23-April 27), sales totaled 1955 units, or 163% above quota.

But to get back to the circus which Georgia Power is now featuring; duration is May 11-July 27; store decorations include banners, beaver-board clowns to call attention to various specials on the sales floor, and circus posters in show windows. Advertising copy illustrations are photographs of three-dimensional cardboard cut-outs, uniquely planned to give an attractive toy circus effect.

Advertising Manager Coffey told us of plans for a weekly award to the district offices which make the poorest sales record—a statue for the manager's desk in the form of a "Goofus Giraffe," which he assures us is quite a "queer bird." Mr. Coffey feels sure that this good natured dig at the sales dummies of the week will be an incentive to better work, in addition to adding interest to the sales program.

Commercial Program

Handling Kelvinator and General Electric equipment, the power company's commercial department is making substantial progress throughout the state. Eighteen men are working strictly on commercial sales, states W. A. Tadlock, in charge of this department of the company's sales.

One to four of these commercial specialists work out of the central office in each of the six divisions into which the state is divided—Athens, Atlanta, Augusta, Columbus, Macon, and Rome.

Further, says Mr. Tadlock, in smaller Georgia Power stores, where there are no salesmen specializing on commercial sales, the regular sales force goes after this business.

Whenever a problem comes up on which they need help, the manager of the division is always available at their call. Likewise, the divisional managers at times will call on Mr. Tadlock for help.

The commercial sales force has been built up from household salesmen in the various stores throughout the state. When one has made an exceptional record in getting commercial business, says Mr. Tadlock, he is picked as a good bet for specialty selling in this field and trained for work as a commercial salesman.

Georgia Power carries two lines of display cases, and is prepared to handle the complete job on almost any type of installation which may be desired.

In the air conditioning field, the company is sticking to small commercial and household installations which require comparatively little engineering. In this line, they believe they can do a thoroughly good merchandising job, and add to the records which they have built up in appliance sales.

LOUISVILLE Harbison & Cartright

In addition to a widespread hardware jobbing business, Harbison & Cartright, 707 W. Main St., Louisville, Ky., acts as distributor in the Louisville territory for Fairbanks-Morse refrigerators, and has an active trade from servicemen in replacement parts and supplies.

The sale of Fairbanks-Morse in the Louisville territory, says Mr. Steer of the Harbison & Cartright office, can still be classified as a pioneering job. In the business three years, the company even yet finds it difficult to persuade dealers to change from the old established lines. Mr. Steer feels that they are making substantial progress, however, and the past two months have in his opinion been exceptionally good.

In Louisville, Mr. Steer says, there are comparatively few dealers who handle their own service work; the majority of this goes to a few well-established service shops and to independent service men.

Interviews

By Robert P. Nixon

In the surrounding territory outside Louisville, this is even more true. "Usually one or two men will do the servicing for a whole town," adds Mr. Steer.

About 50% of the independent servicemen in Louisville operate from their homes. Some local service shops are quite well equipped, however, states Mr. Steer. Concentration on refrigeration service is general; very few in Louisville handle repairs on radios or other appliances.

Harbison & Cartright's distribution of Virginia gases is statewide. In regard to other lines, including Detroit Lubricator valves, Imperial tools, Wolverine tubing, and Dayton belts, Mr. Steer stated, "We have a few good customers scattered over the state." Most business, however, is concentrated within a smaller radius around Louisville.

Difficulty with refrigeration lines is in getting salesmen to push them, says Mr. Steer. The out-of-town salesmen have grown up with other hardware lines, and most of them seldom get refrigeration business except when it is "pushed at them."

One salesman on the force is doing a good refrigeration parts job, states Mr. Steer, and their lines will undoubtedly build up more rapidly as the others get on to it. Radio parts business was slow in the same way at first, Mr. Steer comments.

Another Hardware Jobber

Another hardware jobbing house which has built a substantial refrigeration parts business in Louisville is Geo. Dehler, Jr. & Co. at 402 E. Market St.

As a reminder of business in earlier years, C. L. Bowling, in charge of their refrigeration parts and supplies sales, showed us barrels upon barrels of horseshoes. He intimated they haven't been big sellers recently.

Refrigeration lines are Imperial tools, Wolverine tubing, Detroit and Peerless valves, Ansul refrigerants, and Holfast belts.

Of the Holfast belt line, Mr. Bowling claims it is the best automotive belt on the market, and says it outsells any other in Louisville. And it is proving equally satisfactory in refrigerators, says Mr. Bowling.

Salesmen for the Dehler Co. cover a radius of about 65 miles; there are usually four men working outside Louisville. One of these does extend his calls to a distance of 125 miles in one direction, says Mr. Bowling, in commenting further on the territory they serve.

Most business is from ice cream companies and servicemen handling commercial repair work. Household replacement parts are a small item in their sales.

"Builds Up Sales"

Although automotive and other lines have previously been the mainstay of the business, "this refrigeration business is coming right along," according to Mr. Bowling. "It certainly does build up your sales," he adds appreciatively.

Important factor in parts and supplies jobbing, says Mr. Bowling, is maintaining an adequate stock. Pointing to half a dozen large drums of refrigerant (sulphur dioxide and methyl chloride), he comments, "When I sell one of these, I always try to order one immediately to replace it."

Local distributors and dealers are buying from their factories now, states Mr. Bowling. However, when hot summer weather comes along, he expects to get some of their business. None of them, in his opinion, carry an adequate stock to meet the maximum demands of the rush season.

Cruse Refrigerator Co.

From 1012 E. Broadway, Louisville, Ky., the Cruse Refrigerator Co. ships display cases and commercial boxes to the 8 or 9 surrounding states.

During the first two months of the year, says W. C. Cruse, Jr., Secy-Treas. of the company, sales went up with a bang. March, always a good month, was about normal. More recently, there has been somewhat of a slump in the sale of cases.

The Veterans' Bonus

Almost paradoxically, he attributes this in part to the coming veteran's bonus. All the grocers and meat markets are going to buy "when" they get their bonus money. And of the several hundred grocers in Louisville alone, says Mr. Cruse, about half are to share in the bonus distribution. This estimate is based on a recent survey the company has made in Louisville.

Cruse sells through dealers, and also handles some business direct, particularly among chain store organizations.

Mr. Cruse comments that the rating of their cases by the Frigidaire Co. as "A-1" has been a substantial help to sales. This rating is based on a service to dealers by the Frigidaire main office, says Mr. Cruse, by which a dealer may obtain an estimate (A-1, A, or B) on any case line which he contemplates handling.

The Cruse company does its own fabrication of metals, and has porcelain work done by a local branch of the Ferro Enamel Corp. All cases are finished in porcelain throughout.

Armstrong cork is used for insulation—4 in. for the "Jumbo" line, in which a 10 ft. case sells for \$795; and 3 in. for the standard line, in which a 10 ft. case sells for \$695.

Mist Prevention

Triple glass is used, and a unique method for preventing misting of the glass. This consists of vents at the ends of the case, connecting the spaces between the plates of glass with the inside of the case. The system is designed to make each plate of glass a cold plate rather than warm, which according to Mr. Cruse, has been shown by tests to give more efficient insulation than the type usually manufactured (in which a vacuum is maintained between the layers of glass). And, he adds, it is the simplest method for preventing misting which is now in use.

Some of the company's deluxe cases have been equipped with reflectors, 1/4" in diameter, spaced at intervals between the plates of glass along the bottom and sides of the case. Made of green glass, and cut similarly to the reflectors used on automobiles and bicycles, these add a green sparkle to the interior of the case (particularly at night) designed to make a more attractive display.

New Delicatessen Case

New development which Cruse believes a winner is a delicatessen case of patented design. The slanting front is open, and of the serve-yourself type, except for a narrow strip of glass across the bottom of the display section. It is designed primarily for vegetables, cheese, milk, etc., to be kept at around 50°, says Mr. Cruse, who expects the new design to be a great sales booster for chain grocers and the like.

Refrigeration is maintained by control of air currents, Mr. Cruse explains. The coils are located near the top, air currents directed by a vented baffle board placed vertically in the rear of the case, and so arranged that comparatively little cold air escapes through the open section.

Bottom section of the case is closed with doors of the usual triple glass variety, and refrigerated by separate coils.

In the bottom section 4 in. of cork is used, and 2 in. in the top section.

One of the open 10 ft. cases will use about 20% more current than the usual closed type, says Mr. Cruse, who asked that we inspect the installation.

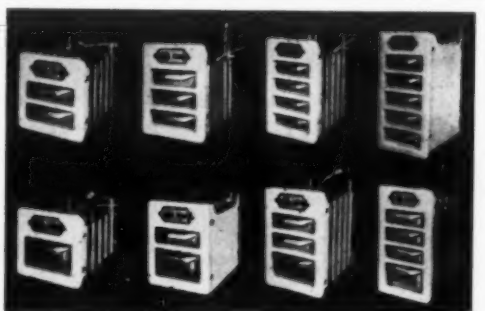
(Concluded on Page 17, Column 1)

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In the largest
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TRENTON AUTO
RADIATOR WORKS
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New York—210-212 W. 65th St.
Pittsburgh—5114 Liberty Ave.



(Concluded from Page 16, Column 5)
lation of this new model at Steidens' main store in Louisville.

Steidens

We went by Steidens, an elaborate grocery store, and one of a chain of 58 in the same organization. In near exact confirmation of Mr. Cruse's estimate, a thermometer in the open delicatessen case stood at 49½°.

The top open section was used principally for Kraft's cheeses in great variety. Also included were grapes and a few other fruits. The bottom section was devoted entirely to milk. Both were brightly lighted, and customers chose their purchase for themselves.

In answer to our inquiry, a clerk stated that the case had increased sales of cheese by over 50%. As to current consumption, it was connected to the row of cases of standard design which adjoined, and there was no way of knowing.

CINCINNATI

At John & Livingston street, Cincinnati, is located the C. Schmidt Co., manufacturer of display cases. When we inadvertently spoke of the cases the company "handles," H. C. Ahrens, first vice president, was very quick to correct us: "the company manufactures display cases."

"Thesco" Cases

Under their trademark, "Thesco," they also produce walk-in coolers and a few display cases not designed for refrigerated use.

The walk-in cooler business is making substantially rapid progress this year, commented J. H. Elliott, who showed us the company's various products, and told something of its sales progress. During depression years, he said, many markets were perfectly willing to let a double display case serve the purpose for all meat storage. With increasing business, and more cash on hand, they now are willing to pay for the added convenience and storage capacity of a walk-in cooler, Mr. Elliott said.

Sliding rubber doors are used throughout for the company's display case line. Triple or double glass, and 4 in. or 3 in. of cork insulation are available in their standard lines.

Vitrolite Finish

About six months ago the company introduced a new product in display case finishes—Vitrolite, glass-like, applied in ¼-in. thick panels with a gum substance, and available in a wide variety of colors and designs.

Advantages for the new finish as pointed out by Mr. Elliott lie in attractive appearance, individuality, and adaptability to decorative schemes for an entire market. Vitrolite can also be used for wall paneling, table tops, etc.

Because of wide variety of designs in which the new finish is available, many made-to-specification jobs are expected. Cost of case finished in Vitrolite is about 20% above that of porcelain jobs, stated Mr. Elliott.

Williams & Co.

The Cincinnati branch of Williams & Co. (other offices in Pittsburgh and Cleveland) carries a full line of refrigeration parts. Selling metal supplies for 27 years, the company added a refrigeration parts department two years ago.

From the Cincinnati office, states H. G. Klugman of their sales staff, the company sells in southern Ohio, eastern Indiana and Kentucky. Eight salesmen represent them in this territory, one of whom is a specialty man on refrigeration parts. Sales program calls for contacting each customer at least once a month.

The company carries a large stock in Revere copper and brass. Other lines of interest to refrigeration trade are Kerotest valves, Penn and Ranco controls, Capewell parts, Peerless evaporators, Dayton and Gilmer belts, Jarow and Dennis gaskets, several makes of tools, and Sun Oil Co. refrigeration oil. The company is also Cincinnati representative for the Aluminum Company of America.

Williams & Co. is little concerned about reports of low prices through other buying channels, says Mr. Klugman. A good share of these reports he classes as merely the buyers' attempts to get lower quotations.

No. 5 Kerotest Jobbers

One of the first jobbers in the refrigeration field was Merkel Bros. Co., states Henry Merkel of this Cincinnati firm. He points out that the company was number 5 on the list of Kerotest's jobbing representatives, and that they have handled refrigeration parts and supplies about six years.

Merkel Bros., however, is over 50 years old, says Mr. Merkel. Their principal lines are in steam fitting and plumbers' supplies.

Most refrigeration business in dollar volume is from distributors and dealers. There are a great many more independents than dealerships on the customer list, states Mr. Merkel, but even so their orders do not total up to the volume bought by the larger organizations.

Air Conditioning

Air conditioning business is becoming a very substantial item in the company's sales figures. Nearly all of the leading manufacturers are well represented in Cincinnati, Mr. Merkel points out, and equipment for air conditioning installations is more and more in demand.

The company's policy has always been one of close cooperation with distributors and dealers. Mr. Merkel doesn't try to go after every order in sight, and, by avoiding intense competition with dealership, he finds that his company is doing a better volume of business in the long run.

Because of the difficulty of getting supplies on short notice, few of the large manufacturers now require that dealers buy all equipment direct from the factory. However, the manufacturer does specify what makes are to be used, explained Mr. Merkel, and this sometimes necessitates handling more than one line of certain supplies in order to get the business.

In some cases Merkel Bros. has taken on more than one line, but Mr. Merkel cautions against the danger of jobbers becoming merely "order takers" in attempting to please every prospect. "We have chosen what we believe is good equipment," states Mr. Merkel, "and our job is to sell these lines of equipment." To merely reflect a wide variety of requests by handling a great many brands of one item is not selling, according to his notion.

Competition from case manufacturers and dealers, many of whom sell commercial equipment at cost merely to get orders for cases, is hurting all commercial business in the Cincinnati territory, says Mr. Merkel. In his own company, commercial orders have been steadily falling off for some time, while business in household parts is increasing right along.

Lines handled by Merkel Bros. include Unipak (United Wire & Supply Co.) tubing, Kerotest valves and fittings, Fedders coils, Minneapolis-Honeywell and Penn controls, DuPont methyl chloride and ethyl chloride, Ansul sulphur dioxide, Carbon & Carbide Isolotane, Dayton belts, Streamline (Imperial Brass) and Arco rigid tubing and sweat fittings, and Jarow gaskets.

Fiftieth Anniversary

This year the Cincinnati Butchers' Supply Corp. is observing its 50th anniversary. Founded in 1886, the company has for half a century built a business in furnishing equipment to packing house and butchers. In addition to machinery, display cases, and walk-in coolers, which the company manufactures, it has also handled Brunner and Universal commercial equipment since May a year ago.

Display case line consists of four models: two single duty and two double duty cases. According to Herman Schmidt, president of the company, the trend in their production is more and more toward standardized models. Made-to-specification work is necessarily much more expensive, usually doubling the cost of production, and they handle this only when it can net a profit.

Cases are available in 3 in. or 2 in. cork insulation, porcelain throughout, and with some variation in interior fittings. About 80% of their orders now call for completely equipped cases. Since the first of this year the company has already sold more Brunner and Universal equipment than in the eight-month period in which they handled these lines in 1935.

They do not, however, require their dealers to use the commercial equipment which they handle, states Mr. Schmidt, and some of their dealers are handling other makes.

Mr. Schmidt says that sales of walk-in coolers have been comparatively small, and that the market for them has been gradually fading in recent years.

Wrapping Board

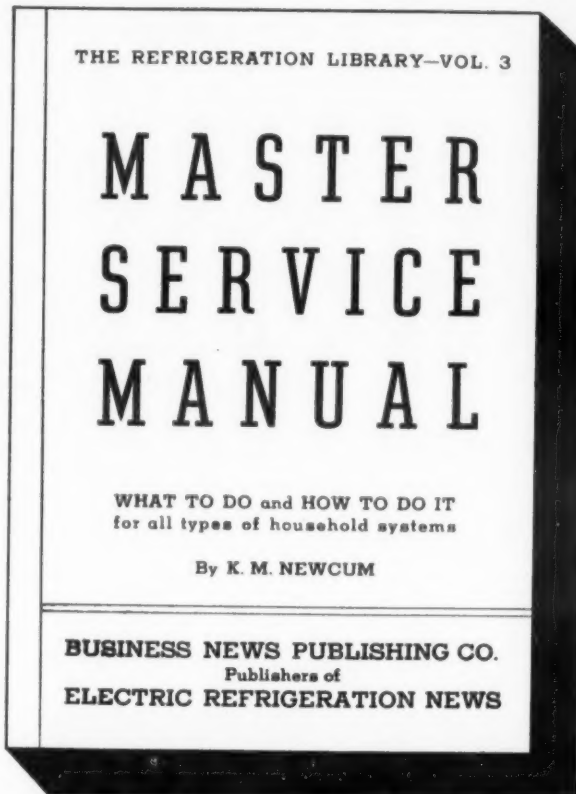
Recent addition to the equipment on the company's display case line is a wrapping board, about 10 inches wide and several feet long. This is located on the rear side of the case, and is attached with hinges so that it can at any time be folded down for convenience in working out of the case.

Price range on the C-B line is in general above that of competitors, states Mr. Schmidt. The company tries to put more into their cases, he adds, and have found the necessary price differential no handicap in selling.

Distribution covers principally the eight or nine surrounding states, with a few dealers located in other sections throughout all the eastern part of the country.

NOTICE

The entire first edition of the Master Service Manual has been sold out.



440 Pages — 257 Illustrations
Price \$3.00

We missed it completely in estimating the market for this book. We printed two thousand five hundred copies but they were gobbled up before we hardly had a chance to get started on our plan to sell the book.

We are putting forms on the press again, and an additional supply of the Manuals will be ready in about two weeks. If you have ordered a copy by mail recently, there will be a delay in shipment.

The following refrigeration supply jobbers have the Master Service Manual on sale at their retail counters and may now have a sufficient number in stock to supply the demand until the new edition is printed.

Refrigeration Supply Co.
100 Washington St.
Brookline, Mass.

Aetna Supply Co.
407 E. 152nd St.
New York, N. Y.

Harry Alter Co.
161 Grand Ave.
New York, N. Y.

Federal Refrigerator Corp.
57 E. 25th St.
New York, N. Y.

Wholesale Radio Service Co.
100 Sixth Ave.
New York, N. Y.

Home Oil Burner Corp.
236 Main St.
Hempstead, L. I., N. Y.

McIntyre Connector Co.
263 Jefferson St.
Newark, N. J.

Victor Sales Corp.
2222 Arch St.
Philadelphia, Pa.

Wm. M. Orr Co.
1228 Brighton Rd.
Pittsburgh, Pa.

Radio Service Co.
50 Hazle St.
Wilkes-Barre, Pa.

Melchior, Armstrong,
Dessau Co., Inc.
400 E. Lombard St.
Baltimore, Md.

Henry V. Dick & Co.
514 Oates St.
Charlotte, N. C.

Debes & Co.
1249 E. 105th St.
Cleveland, Ohio.

W. C. DuComb Co.
6335 E. Palmer
Detroit, Mich.

J. M. Oberc, Inc.
904 W. Baltimore
Detroit, Mich.

Harry Alter Co.
1728 S. Michigan Ave.
4611 N. Western Ave.
5217 W. Madison St.
7821 Stony Island Ave.
Chicago, Ill.

W-M Refrigeration Co.
2468 N. Third St.
Milwaukee, Wis.

Harry Alter Co.
2315 Washington Ave.
St. Louis, Mo.

The Spangler Co., Inc.
3331 Market St.
St. Louis, Mo.

Thermal Service Co.
2490 University Ave.
St. Paul, Minn.

United Supply Co.
207 N. 16th St.
Omaha, Nebr.

Hieb Distributing Co.
905 Walnut St.
Des Moines, Iowa.

C. L. Percival Co.
11th & Cherry St.
Des Moines, Iowa.

Burstein-Applebee Co.
1012 McGee St.
Kansas City, Mo.

Refrigeration Service, Inc.
3109 Beverly Blvd.
Los Angeles, Calif.

California Refrigerator Co.
1077 Mission St.
San Francisco, Calif.

Refrigeration Supplies
Distributor
222 N. Vermont
Los Angeles, Calif.

J. Russell Hancock, Ltd.
27 Courtney Place
Wellington, New Zealand.

F. C. Lovelock, Ltd.
235 Clarence St.
Sydney, Australia.

BUSINESS NEWS PUBLISHING CO., 5229 Cass Ave., DETROIT, MICH.

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An exclusive feature (patent pending) available only in Koch Display Cases. These coils operate at higher back pressure and higher humidity, yet occupy less space. Distributors for complete commercial cabinet line. Attractive prices.

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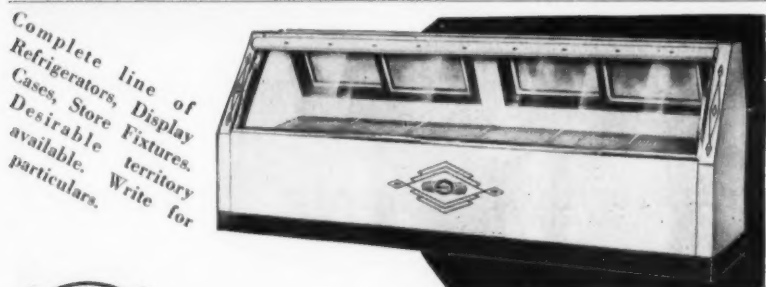
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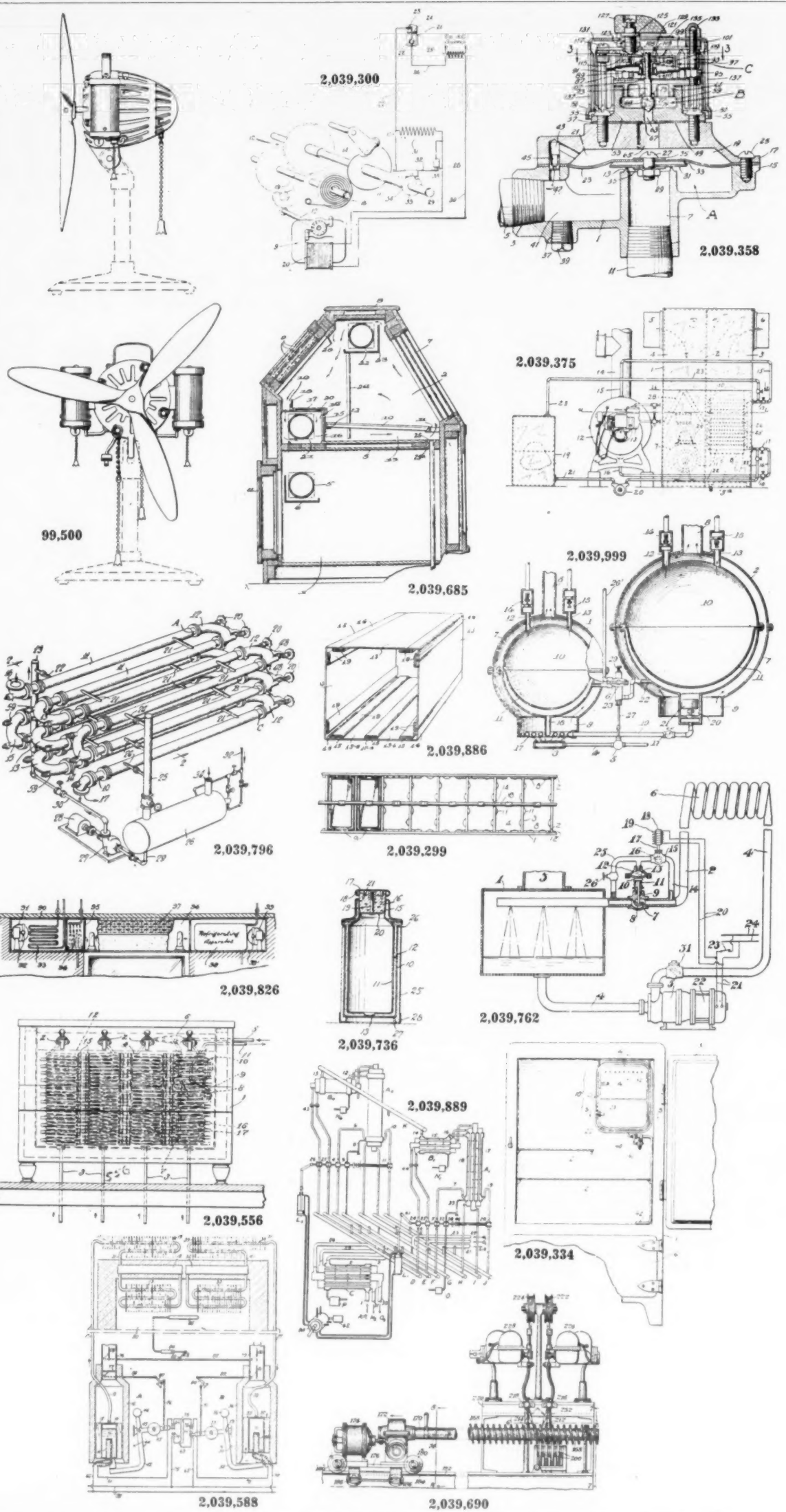
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For electric refrigerators, washers, beer pumps, oil burners, compressors, air-conditioning units, etc. . . Gilmer has a V-Belt to fit . . . from the largest stock of moulds in the world. Write for V-Belt catalog.

L. H. GILMER COMPANY, TACONY, PHILADELPHIA



Patents

Issued May 5, 1936

99,500. DESIGN FOR A COMBINED AIR CONDITIONING AND CIRCULATING FAN. Robert W. Devore, Chicago, Ill. Application Aug. 27, 1935. Serial No. 58,326. Term of patent 7 years.

2,039,299. ICE CAN GRID. Augustus P. Dougherty, Warren, and William H. Stevens, Niles, Ohio. Application March 16, 1935. Serial No. 11,502. 3 Claims. (Cl. 62-157.)

2,039,300. CONTROL FOR AIR CONDITIONING SYSTEMS. George Forrest Drake, Rockford, Ill., assignor to Howard D. Colman, Rockford, Ill. Application Feb. 29, 1932. Serial No. 595,718. 8 Claims. (Cl. 236-74.)

2,039,334. REFRIGERATOR. James A. Nagy, Detroit, Mich., assignor of forty-five per cent to Frederick G. Richardson, Detroit, Mich. Application Oct. 5, 1934. Serial No. 747,720. Renewed March 6, 1936. 9 Claims. (Cl. 62-91.5.)

2,039,588. THERMALLY OPERATED

VALVE. John A. Spencer, Newtonville, Mass., assignor to General Plate Co., Attleboro, Mass. Application July 14, 1934. Serial No. 735,215. 2 Claims. (Cl. 236-80.)

2,039,375. AIR CONDITIONING APPARATUS. Glenn F. Zellhoefer, Bloomington, Ill., assignor to Williams Oil-O-Matic Heating Corp., Bloomington, Ill. Application March 29, 1934. Serial No. 717,927. 2 Claims. (Cl. 257-137.)

2,039,556. BEVERAGE COOLER. Harry R. Ruse, Baltimore, Md. Application Feb. 15, 1935. Serial No. 6,614. 8 Claims. (Cl. 257-205.)

2,039,588. REFRIGERATION. Erik August Forsberg, Stockholm, Sweden, assignor, by mesne assignments, to Servel, Inc., New York, N. Y. Application Dec. 31, 1935. Serial No. 56,879. In Sweden Aug. 25, 1933. 15 Claims. (Cl. 62-5.)

2,039,685. REFRIGERATOR DISPLAY CASE. Albert H. Ehrlich, St. Joseph, Mo. Application Dec. 9, 1930. Serial No. 501,102. 2 Claims. (Cl. 62-103.)

2,039,690. FIN TUBE MANUFACTURE. James E. Trainer, Barborton, Ohio, assignor to The Babcock & Wilcox Co., Bayonne, N. J. Application Sept. 26, 1931. Serial No. 565,255. 17 Claims. (Cl. 219-8.)

2,039,736. REFRIGERATION. Carl Georg Munters and Alvar Lenning, Stockholm, Sweden, assignors to Platen-Munters Refrigerating System, Aktiebolag,

Stockholm, Sweden. Application Nov. 17, 1931. Serial No. 575,569. In Germany Nov. 17, 1930. 9 Claims. (Cl. 62-1.)

2,039,762. REGULATING MEANS FOR REFRIGERATING SYSTEMS. George H. Woodard, Phillipsburg, N. J., assignor to Ingersoll-Rand Co., Jersey City, N. J. Application March 29, 1935. Serial No. 13,642. 2 Claims. (Cl. 62-152.)

2,039,796. CHILLING APPARATUS. Nicolai H. Hiller, Carbondale, Pa., assignor, by mesne assignments, to Worthington Pump & Machinery Corp., Harrison, N. J. Application Oct. 31, 1933. Serial No. 695,988. 14 Claims. (Cl. 62-126.)

2,039,826. VENTILATING DEVICE. Benjamin A. Morton, New York, N. Y. Original application May 2, 1930. Serial No. 499,170. Divided and this application Feb. 25, 1933. Serial No. 658,635. 1 Claim. (Cl. 98-88.)

2,039,886. DUCT. Aaron Cohn, Philadelphia, Pa. Application Sept. 7, 1935. Serial No. 39,602. 15 Claims. (Cl. 138-75.)

2,039,889. METHOD AND APPARATUS FOR COOLING AND DRYING MOIST GASES. William Lane De Baufre, Lincoln, Nebr. Application Sept. 5, 1934. Serial No. 742,869. 27 Claims. (Cl. 62-175.5.)

2,039,999. REFRIGERATION COMPRESSOR. Earl F. Holyfield, Stillwater, Okla. Application Feb. 4, 1935. Serial No. 4,955. 3 Claims. (Cl. 230-49.)

Letters from Service Men

A Cincinnati Tech. Man

The three sample copies of **ELECTRIC REFRIGERATION NEWS** were received, thanks for same.

Enclosed find check No. 14960 for the sum of six dollars for which please send me a copy of **MASTER SERVICE MANUAL** and enter my name for a year's subscription to **ELECTRIC REFRIGERATION NEWS**. Please also enter my name for Catalogues.

Am a graduate of Cincinnati Tech. (M. E. E. Degrees). Have constructed many ice and electric plants throughout the Southern states. Am now starting a refrigeration servicing business and although I fully understand refrigeration there are some phases of household refrigeration that I am not familiar with, so would therefore thank you to send me the above mentioned **MASTER SERVICE MANUAL**, and start my subscription with April 22 issue.—H. W. Lowe, 3310 Cornelia Drive, Coconut Grove, Miami, Fla.

An Appreciative Reader

Alexander J. Levinson
Electric Refrigeration Sales—Service
1628 Lincoln Place, Brooklyn, N. Y.
May 15, 1936

Gentlemen:

Please be good enough to add my name to your Catalogue mailing list. Your specification numbers are great, and educational in itself. Mr. Taubeneck's articles are entertaining and enlightening. Many thanks for this service.
A. J. LEVINSON

Very Valuable Publications

Claude M. Sumner
Refrigeration Technician
All Makes of Electric Refrigerators
Installed—Serviced—Repaired
1586 Evelyn Ave., Ferndale, Mich.
I would like to have you add my name to the Catalog Mailing list.
As I am at present time a subscriber of **ELECTRIC REFRIGERATION NEWS**, also I have the **MASTER SERVICE MANUAL** which I study a whole lot.
They are without a doubt very valuable publications to any person in this business.
CLAUDE M. SUMNER

Service Manual Looks Good

Enclosed please find the 50 cents as per your letter and also 25 cents for issue of Domestic Specifications. Manual arrived and looks good but have not really had time to give the once over yet. Would be glad to be put on your catalog mailing list.—E. H. Albrough, Box 975, Ingersoll, Ont., Canada.

A Good Idea

Enclosed find \$3.00 for one year subscription to **REFRIGERATION NEWS**. Also include our name in your mfgs. mailing list as I think this is a good idea.—H. A. Persett, Persett Electric Service, 1818 South Ave., Syracuse, N. Y.

Enclosed please find M. O. for three dollars for which you may enter my subscription to **ELECTRIC REFRIGERATION**

INFORMAL TALK NUMBER 51

The Refrigeration Industry Supervises This Training

When you employ an R-A-C-I graduate you get a man who has been trained in strict accordance with the ideas of the leading manufacturers in this industry... a man whose Training from start to finish has actually been supervised by these manufacturers' own factory engineers.

You get a man whose Training was concluded by more than 100 hours of actual shop work in Chicago... installing, repairing, and servicing practically every type of refrigeration and air conditioning equipment.

R-A-C-I Training must be good. It is good. In fact, there is no other Training like it. It is the ONLY Training actually supervised by industry-appointed engineers and "officially" endorsed and recommended by thirty of the leading manufacturers in the field.

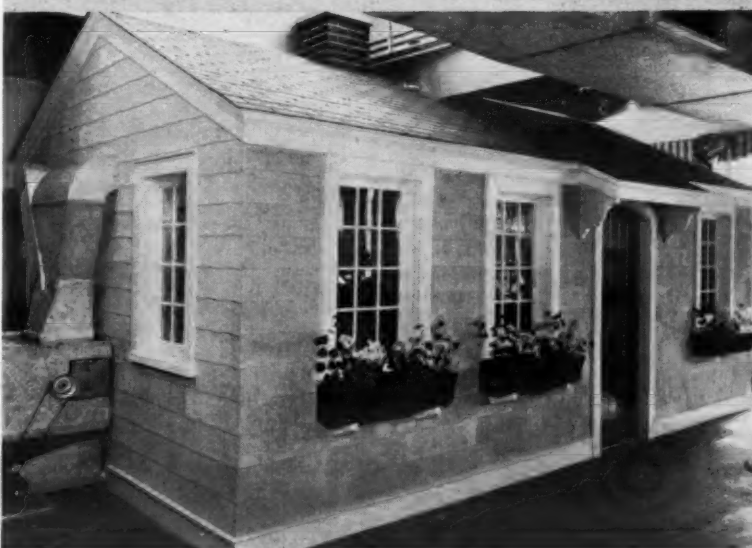
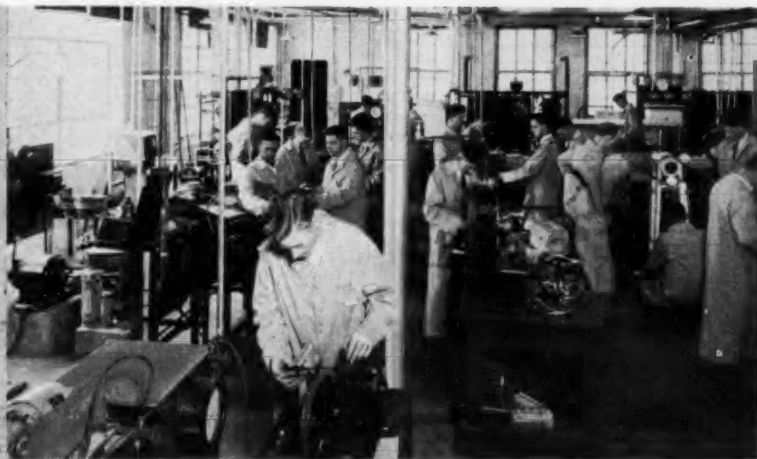
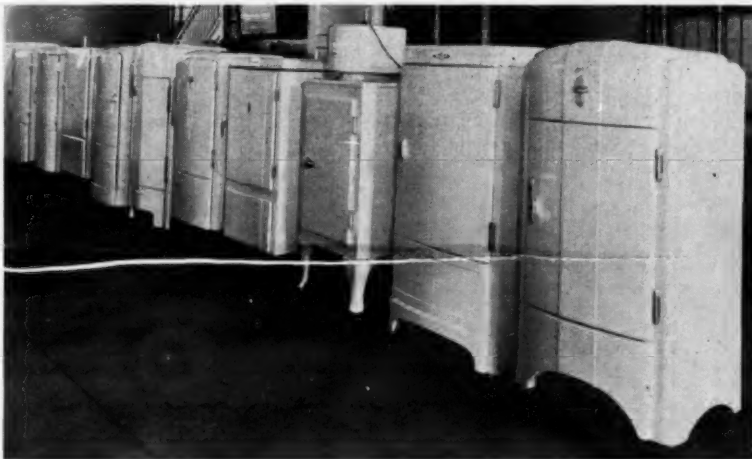
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2150 LAWRENCE AVE. • CHICAGO



The Officially Endorsed School

Refrigeration and Air Conditioning Institute's New Laboratory



Above, left: These standard 1936 model refrigerators are studied by students of Refrigeration and Air Conditioning Institute during their first week of resident instruction. Right: Students at work on the commercial refrigeration equipment on the second floor of the laboratories. Below, left: Air-conditioned bungalow on the second floor. Right: A view of the household refrigeration shop.

News for one year beginning with last week's April 22 issue.

I am a service man and would be pleased to have my name placed on the catalog mailing list.—Wm. Anderson, 1530 Smith St., Muskegon, Mich.

C. W. Schoolcraft
"Service Is Our First Consideration"
Philco Radios, A. B. C. and Maytag
Washing Machines
West Lebanon, N. H.

Dear Sirs,
Will you kindly put us on your catalog and service mailing list?
Thanking you in advance.
C. W. SCHOOLCRAFT,
D. C. M.

I am enclosing the postcard and 25 cents for the 1936 Household Electric Refrigerator Specification Issue.

I have moved to 551 West 14th St., San Pedro, Calif. I wish you would immediately change the address and send my **ELECTRIC REFRIGERATION NEWS** paper to the new address.

I enjoy the News very much and don't want to be without it.

Please enter my name in Serviceman Catalogue.—Edward B. Barnett, 551 West 14th St., San Pedro, Calif.

Please change your subscription address for A. W. Brown from Raymond, Calif. to 2522-26th St., Sacramento, Calif.

Also, will you put me on your mailing list for catalogs, folders, etc.?—A. W. Brown, 2522-26th St., Sacramento, Calif.

Please list me among your independent servicemen to receive catalog and literature from manufacturers.

I have been a subscriber to your wonderful **ELECTRIC REFRIGERATION NEWS** since Jan. 1st, and am very well pleased with its contents pertaining to this industry.—Carl J. Carlson, Refrigeration Technician, Box 517, Boone, Iowa.

Please put my name on your Catalog Mailing List.—E. D. Gothberg, Rt. No. 2, Box 225A, Birmingham, Ala.

Find enclosed check for your Invoice No. 6965, also one **MASTER MANUAL**.

Please enter my name on your catalog mailing list.—O. W. Griffin, Electrical Refrigeration Service & Supplies, Route 3, Parkersburg, W. Va.

Enclosed please find my renewal to **REFRIGERATION NEWS** and order for **MASTER SERVICE MANUAL**. Would you please see if May 6 issue was sent to me as I never received it. I have May 13 but not 6th.

Please place my name on your catalog mailing list.—Eugene Davis, 1628 Ferris, Lincoln Park, Mich.

Please enter my name on your catalog mailing list. Thank you.—W. Tegner, Refrigeration Service and Sales, 3740 Foothill Blvd., Oakland, Calif.

CHICAGO—Formal opening of the new shops and laboratories of Refrigeration and Air Conditioning Institute was observed with all-day "open-house" and dinner Thursday, May 21, at the Institute's Lawrence Ave. headquarters. More than 100 persons attended the dinner.

Only scheduled speaker was Ray D. Smith, president of the Institute, who outlined the history of the school and the events leading up to the erection of the new shops and laboratories, a place in which R. A. C. I. students are given a chance to put their knowledge into practice before going out into the field "on their own."

Large share of the credit in layout and equipment of the new structure, Mr. Smith said, is due to cooperation from the Institute's board of governors, made up of L. K. Baxter, service manager, Westinghouse Electric & Mfg. Co.; E. A. Siebert, service director, Kelvinator Corp.; Charles D'Olive, assistant to the general sales manager, Stewart-Warner Corp.; C. L. Olin, commercial applications manager, Servel, Inc.; J. R. Cameron, national service manager, Norge Corp., and A. G. Sutcliffe, chief engineer, Ilg Electric Ventilating Co.

The new laboratory adjoins the Institute's administration building. Its first floor is devoted entirely to electric refrigeration products.

Upon entering the laboratory, the student is given a typical refrigeration serviceman's tool kit, containing gauges, thermometers, and other instruments with which he must become familiar. He is next given complete instruction on the mechanics of service work on household systems.

Service jobs are performed on standard makes of refrigerators, and the work tested much the same as it would be in ordinary use. Refrigerators on which work is done in the laboratory include the following:

Westinghouse, General Electric, Norge, Kelvinator, Frigidaire, Servel, Coldspot, Fairbanks-Morse, Copeland, Gibson, and Crosley.

The student spends the first week of his shop training period on the first floor, working with household equipment.

At the start of the second week, the student goes to the second floor. This floor contains commercial refrigeration installations and equipment of various kinds, as well as two complete air-conditioning installations.

Commercial equipment includes a floral display case, walk-in cooler, market display case, milk cooler, bulk ice maker, beer cooler, and beverage cooler.

Air-conditioning equipment consists of two complete installations—a 2-hp. unit, installed in a completely insulated two-room bungalow; and a 7½-hp. unit, used for conditioning the large room on the second floor. A room cooler and an ice air-conditioning unit are also shown, the latter for purposes of comparison between ice and mechanical cooling for small rooms.

Work on the commercial refrigeration and air-conditioning equipment follows the same course as in household—analyzing, tearing down, and rebuilding—and in addition includes applications work, in which the student estimates the equipment required to cool the various commercial jobs on the floor. The units can be arranged to produce faulty conditions, so that the student comes across many of the problems he will have to face later in actual field work.

The same is true of the air con-

ditioning shop work. In addition to figuring the heat load of the two-room bungalow under various specified conditions, the student submits complete specifications for conditioning the space, including size of condensing unit, type of conditioner, air velocities, duct work, and necessary controls.

When the system gets "out of order," which can be arranged, the student is required to make the necessary tests and measurements to correct the wrong conditions and regain proper temperatures.



LINE YOU UP FOR A BIG SHARE OF REPLACEMENT BUSINESS

Cutler-Hammer Control, time-tested and proven on hundreds of thousands of popular refrigerators, is now available as a replacement unit. With only 4 models you are ready for 99% of the business in your community (one for sulphur dioxide systems, one for methyl chloride, two for temperature in 24" and 48" tube lengths). Small stock means small capital outlay, fast turnover, no shelf-losses.

Each control provides wide-range cold control, the famous C-H overload, protection to motor under all circumstances, simple and rugged design, modern and attractive appearance.

This control installs easily behind the evaporator shield... either horizontally or vertically. A screw in the knob adjusts cold control. A screw in the rear lengthens differential. One screw removes cover for inspection.

Replacement Control for Beverage Coolers and Ice Cream Cabinets rounds out this line. The market is waiting; this concentrated line should bring big returns. Send NOW for descriptive literature; see your jobber for supplies. CUTLER-HAMMER, Inc., Pioneer Manufacturers of Electric Control Apparatus, 1362 St. Paul Avenue, Milwaukee, Wis.

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